# The Builder.

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### *Notes from Athens.*

NOW that Athens has begun to settle down again to its normal condition, after the festivities of the late wedding, it is possible to get some idea of what work has been going on during the last few months. The excavations on the Acropolis were practically brought to a close before summer. The Turkish approach and the gatehouse have now quite disappeared, and although, perhaps, this clearance was rather needless, the results, in the form of inscriptions, &c., found, hardly justifying the destruction of a picturesque corner, still it has considerably opened up the view of the Propylæa from the south-west, which is now only marred by the ugly enclosing railing under the Niké bastion.

We cannot yet say whether we may gain any further knowledge about the original approach to the Propylæa, as the surface of the ground has not been completely cleared. The later casings to the walls of the towers on either side of the Beulé gate have also been removed. A little excavating is at present going on immediately inside this gate, but nothing of importance has as yet been brought to light.

To the north of the Parthenon, the picturesque piles of fallen blocks have unfortunately been rearranged somewhat symmetrically, as had been done previously on the south and east sides. This is to be regretted, as there now no longer exists any of that natural disorder—huge drums of columns, great architrave stones lying just as they had fallen—which it was so refreshing to find on the Acropolis of a few years ago.

The collection in the larger Acropolis Museum has at last been arranged in a more permanent form.

The first two rooms on the left as we enter are occupied by the Poros stone sculptures. The latest one fixed is a large blue bull being attacked by two lions. The lions' claws are embedded in its flesh, and from the wounds red streaks of blood show, very realistically running down its side. The position of the bull, with its head down in a last struggle for life, is full of energy. Here, also, we find two snakes from another pediment, with vigorously-modelled heads, erect in the attitude of defence, and bodies in diminishing coils filling in the ends of the pediment. These snakes have gorgeously coloured and carved scales. Close to these is the three-headed monster with its human bodies and intertwining snaky tails which has been named Typhon. Its heads, with their dark blue beards, attracted much attention when found about a year and a half ago. Here, also, are various other pieces of pediments, including the smaller ones illustrating some of the labours of Hercules. In the same rooms are remains of one or two figures in Poros stone. The garments have been completely coloured in these, and the ornament on the borders is cut in as well as painted. This, we must assume, was the earlier method employed on the softer material, and when marble came to be more generally used, the ornament was merely drawn on and then painted. This would also apply equally to the coloured ornament on architectural mouldings, &c. Portions of a large archaic pediment filled in with an incised decorative design in various colours have also been lately pieced up and fixed.

The third and fourth rooms contain principally cases of vase fragments, terra-cotta figures, and fragments of small marble sculptures; but, in addition to these, there are a number of architectural pieces consisting of coloured cymatii in marble and terra-cotta, a few antefixæ, and several pedestal capitals.

In the next two rooms we come to the very fine series of archaic figures which are so well known. Additional fragments have been found belonging to some of these, and they have recently been fixed on to them.

Several interesting reliefs have been found comparatively recently. One fine work of about the end of the fifth century B.C., represents Athena leaning on a spear, beside a plain stele, in an attitude of mourning. There are also one or two new heads, including one, very well preserved, of a gorgon with very flat features and protruding tongue; this has probably formed part of an architectural decoration.

In another room have been fixed the very beautiful slabs of the Phidian frieze which remain at Athens, excepting, of course, those which are still in situ on the west end of the Parthenon, and beside them are arranged casts of the ones in the British Museum, and of the pediment sculptures. These have been presented to the Greeks by our museum authorities.

The head of Iris, found last spring, has been fitted on to the cast of the slab to which it belongs, the original of the slab itself being in London.

Still another room is occupied by the fine sculptured slabs forming part of the balustrade in front of the Nike temple, and by the figures from the Erectheum frieze.

The last room is devoted to the collection of bronzes. One of the newest things in this room is the figure of a gorgon cut out of a flat bronze plate, with the details filled in by incised lines; this is attached to a bar, which again is connected to a circular bronze ring, the whole probably forming part of a shield, the remainder having been of some other material, perhaps hide.

In the smaller museum the miscellaneous things have been collected in shelves and somewhat roughly arranged for the use of students. Here are to be found the architectural fragments in "Poros" stone belonging to early temples and shrines; a large number of gutter-fronts and cymatii, both in marble and terra-cotta; the interesting early pedestal capitals which we have spoken of before; and many other pieces of architectural detail found from time to time in various parts of the Acropolis.

There is a proposal to surround the whole Acropolis area, including the Areopagus, the museum and the two theatres, with a wall-trailing, and form it into a kind of sacred enclosure. Steps have already been taken in this direction by the construction of a new road from the lower part of the town near the railway-station to the museum. Nothing has yet been done in connexion with the proposed excavations along the base of the Acropolis rock on the north side, with the exception of clearing away some of the earth thrown over from above, and pulling down a few houses. The unsightly sloping masses of loose earth, the result of the excavations on the Acropolis, still remain and disfigure the whole appearance of the rock on the north and east sides. It is to be hoped that they will soon be cleared away, and once more allow the whole face of the rock to be seen, and the caves and grottoes which are at present hidden behind them.

A road has been opened up from the Arch of Hadrian to the monument of Lysicrates. This monument, which is situated a short distance east of the Acropolis in the midst of a labyrinth of houses and narrow streets, will now be more easy of access. By the removal of some houses a small open square has been formed beside it, and the

surrounding ground has been lowered several feet to the level of its base.

During the summer the remains of a large building of Roman times have been brought to light, to the north of the Temple of Jupiter Olympius, and near where about two years ago were unearthed parts of what was supposed to have been a Roman bath. These consist of the foundations and a portion of the walling of several chambers grouped round two courts, which are connected with one another. The walls are of two kinds, those regularly built of flat Roman bricks with wide mortar joints and others of rough rubble. The larger court is almost square, and measures about 95 ft. by 85 ft. between the columns. The longer side has ten bays. The bases of the columns rest on a continuous marbled threshold, raised, probably, one step above the garden in the centre. Several very florid Ionic capitals, belonging to the pillars, have been found. The stoa round the court is about 17 ft. wide, and has an elaborate marble mosaic floor of intricate and varied design, and which is similar to the other floors of this nature discovered already in this suburb of Hadrian's time. Chambers of various forms and sizes, some octagonal, others square, and others, again, longer and with apsidal ends, open off this court. In the centre of the west side is a square room, considerably larger than any of the others, which has a very complete mosaic floor, and the remains of panelled marble lining to its walls; this has been in two colours, green and white. The smaller court, of semi-circular form, lies to the south of the larger one, and is connected with it by an opening or door. It is over 50 ft. in diameter. In the centre is a marble floor with a broad border of blue slabs round the edge, and inside this a simple pattern in three colours, arranged round variegated squares.

The bases of the pillars rest as before on a threshold, and between each pillar there has been a marble balustrade, the sill in one instance being still in position. The capitals to the columns are of Corinthian form of the early type seen in the doorways of the Tower of the Winds. The floor of the stoa round this court is of mosaic, and it is curious to notice that where the drain from the inner open court cuts across under this floor in an oblique direction, its line is clearly shown by the return of the borders of the pavement on each side, and it has probably been covered over with slabs to allow of easy access.

Across the straight end of this court are traces of what seem to have been two tiers of fish-tanks, a narrow one at level of court with a marble front, and a wider one behind and raised a foot higher. Round the walls are traces of a dado of narrow, upright, green slabs. On the plastered walls of some of the smaller chambers behind are remains of colour decoration, principally in plain bands and squares. We find also many drains, mostly about 8 in. square inside, and built of the long Roman tiles to sills and sides, and covered with marble slabs. There are also one or two manhole chambers for access to these.

At the Dipylon Gate and the Ceramicus a good deal has been done in the shape of clearing away the ridges of earth left on the site after former excavations, and the whole place has been enclosed by a wall and railing and is now properly looked after, instead of being a deposit for half the refuse of the town as formerly seemed to be the case. Additional excavations will shortly be undertaken here by the Greek Archæological Society, and with this view the small church of the Holy Trinity, which is, however, of no architectural value, will be pulled down.

Progress is being made with the arrangement of the various collections in the National Museum on the Patissia-road, the building of which has only recently been finished.

In the Polytechnic Museum the additional things found at Mycenæ by the Greek Archæological Society during their excavations there last year, when more tombs were opened, are now on view, although they have not yet been properly arranged. Here may also now be seen the frescoes from the prehistoric palaces at Tiryns and Mycenæ. The recent discoveries in a tomb at Vaphio, near Sparta, which vie in interest with Schliemann's Mycenæ treasures, will not be exhibited until they have been published by the Society in their Journal.

The most typical and interesting of the Byzantine slabs and carvings which had been built into the houses and other buildings that formerly stood on the Acropolis, and which since the removal of these buildings were gathered together in the courtyard of the old entrance, have been recently removed to the National Museum, where a Byzantine Court is being arranged. Although it is not unlikely that many of these carvings had been taken from buildings in the town, and used up in later buildings on the Acropolis, still we think it would, perhaps, have been more interesting to have left them where they were found, especially as a covered shed could so easily have been formed beside the Museums to receive them. The idea, however, seems to be to collect all the Byzantine relics together in one place.

The ground round the Kapnikarea Church, which is situated in one of the main streets, has been lowered several feet, and it is now possible to judge the true proportions of this interesting little Byzantine building, which till quite recently was buried three or four feet by the accumulations of the centuries. This excavation verifies the theory that the later western addition was originally an open porch, as the jambs of the openings run down to the ground level. A similar improvement is about to be effected round the church of S. Theodore.

The Christian Archæological Society of Athens are just now busy with the remains of the convent and church of S. Andrew, near the metropolis. The people who inhabited the old conventual buildings have been provided for elsewhere, and interesting researches and excavations are now being made. Already several underground cellars and passages have been discovered and some inscriptions and architectural fragments have been unearthed; under the church itself several vaults have been opened, and these were found to contain bones. In the old refectory an interesting fresco of a Tree of Jesse, which had been covered with whitewash, will be cleaned and preserved. We believe it is proposed to form a small museum of Christian antiquities in two of the old rooms.

At present a very interesting collection of Christian relics is to be seen at the house of Dr. George Lambakis, a learned archæologist, and formerly Ephor of Christian Antiquities here. This includes a large variety of objects connected with the ritual of the Church, such as chalices, pattens, knives for dividing the sacred bread, spoons for the holy wine, various forms of crosses, lamps, incense burners, and a curious assortment of vestments, besides a number of architectural fragments both in stone and wood, and many miscellaneous objects.

Nothing further has been done with regard to the proposal to remove the mosaics from the dome at Daphne, and bring them into the museum here. They have been made temporarily secure in their present position, and the scaffolding is still up. We trust that the scheme will eventually be abandoned, and that they will be allowed to remain where they are, additional precautions being taken to ensure their preservation. Dr. Lambakis has just published a monograph on this interesting church and monastery, but we have to refer to it again at a future time.

Dr. Schliemann has procured another firman from the Porte, and is at present at Hissarlik, making arrangements for further extensive excavations during the spring on the site of ancient Troy, with a view to establishing his claims beyond a doubt, and silencing all unbelievers.

The archæological schools are again in session. Three students have already come out to the British School, and others are expected shortly. It is hoped that they will muster nine or ten within another month or two. The school may probably undertake some excavations in Greece in the spring, but nothing has yet been fixed with regard to this. Meanwhile two students go to Cyprus shortly to commence work on the important site of Salamis, under the auspices of the Cyprus Exploration Fund, while two others have already started into the interior of Greece to examine the mediæval remains.

Several valuable and necessary architectural works have been added to the library of the School since last session, but many more are still wanted to make it of any practical value, for reference purposes, to students and architects travelling in Greece.

## A TECHNOLOGICAL DICTIONARY.*

THIS work, in three thick volumes, in which each of the three languages concerned takes the lead in its turn, is a truly gigantic labour. The editors, whose names we have not space to give at length, are no less than eighteen in number, and it aims at giving, in three languages, the technical terms in connection with all the branches of scientific industrial and constructional work named in our footnote below. Such a work could perhaps hardly ever be really complete, for the subject is practically endless, and the terms employed in various branches of work are continually being augmented as new developments produce new and special nomenclature. But there is no doubt that, as claimed for it in Herr Karmarsch's preface, it contains "a remarkably rich store of carefully-collated material." A great number of the expressions introduced into such a work are of course not found even in very good and copious dictionaries of languages; they are not words in ordinary literary use, and are unknown to the compilers of ordinary dictionaries, though it may be noted that of late years there has been a great deal more attention paid, in dictionaries of language, to technical words than was formerly thought necessary.

The principal use which is contemplated for the dictionary here spoken of is to facilitate correct and precise translation of technical descriptions from one language into another. That assistance of this kind is very much required is evident when we see how vague and deficient in precision such translations often are. In some cases this precision of expression in another language is hardly possible without considerable circumlocution, as it sometimes happens that where one language has a precise term embodied in a single word, another has no corresponding term, and the idea can only be expressed in a sentence. These are exceptional cases, however, and possibly another edition of the dictionary will further reduce their number.

The dictionary does not profess to define scientific terms further than by giving their equivalent in another language. Thus "Abscissa" receives no definition beyond "der Abschnitt" and "Abscisse." To have attempted to give a definition in terms as well as a translation would of course have extended the size and scope of the book enormously, and it was better not to attempt it; we only mention it to make clear what kind or degree of information is to be looked for in the dictionary.

We must confine ourselves here to a few remarks on the architectural terms presented. We fear there is a good deal to be done yet before these are free from confusion. The dictionary does not, for instance, clear up the matter of "moëllon" and "pierre de taille," which in French dictionaries are constantly

* Technological Dictionary (English-German-French: Deutch-Englisch-Französisch: Français-Allemand-Anglais) of the terms employed in the arts and sciences; architecture, civil military and naval; civil engineering, including bridge-building, road and railway-making; mechanics; machine and engine-making; ship-building and navigation; metallurgy, mining and smelting; artillery; mathematics; physics, chemistry; mineralogy, &c. Edited by E. Althans, L. Bach, F. C. Glaser, &c., &c., and published by Erich Schiller, with a preface by Karl Karmarsch, late chief director of the Polytechnic School in Hanover. Third edition, completely revised and corrected. Wiesbaden, J. F. Bergmann; Paris, J. Baudry; London, Trübner & Co.; New York, B. Westermann & Co.

both translated as "ashlar," whereas they certainly are not the same thing. We take a sentence from a French architectural paper which describes a building as "construite entièrement en pierre de taille *et* en moëllons." A French architect to whom we definitely put the question describes "pierre de taille" as a masonry of large stones dressed and laid in even courses, and "moëllon" as a masonry of small and more roughly dressed stones of uneven sizes.* It would appear from this that "moëllon" really corresponds pretty nearly to ragstone, and "pierre de taille" is the proper translation of ashlar in the sense in which the word is commonly used in England. Gwilt certainly defines ashlar (Italian *asciare*, "to chip") in the first instance as "common or freestones as brought from the quarry of different lengths and thicknesses." But his second definition, "the facing given to squared stones on the front of a building," is nearer the ordinary acceptation of the term; and this smooth or rubbed work, "plain ashlar," we take to be the proper equivalent of "pierre de taille."

Some of the English terms in the book are curious, and look rather as if this portion had been revised by Germans without the help of an English editor; and there are in fact none but German names in the list of editors on the title-page. In the French edition we find "moëllon ebuziné" (?) done into English as "refreshed ragstone," a term with which we are certainly not familiar. It is given again in the English volume, but with the French equivalent given this time as "éboussiné," so that both in English and French the compilers seem rather at sea. Both spellings are wrong; "pierre" is feminine, and the correct word is "ebouzinée." Under the head "Strut," in the English edition, "angle-brace" and "angle-tie" are added as if equivalent expressions, which it is needless to say they are not, a strut being a member in compression and a tie a member in tension. One of the French equivalents given is "étance," which we do not find in a French dictionary; there is "etançon," translated as a "stanchion" or a "shore" in the literary dictionaries. However, "étance" and "étançon" are both given in the French volume of the technological dictionary, with the same meaning, and we presume therefore they are both in use. In the German equivalents, "Strebe" and "Band" are mixed up, just as "strut" and "angle-tie" are mixed up in the English; "Strebe" being a prop and "Band" having much the same meaning as in English. When we look among the "Angles" we find "angle-tie" again coupled with "angle-brace" as under the same heading, but in that case what is it doing as an equivalent to "strut"? As the confusion occurs in the German equivalents to "strut" as well as in the English, this seems to be a case in which the editor engaged has been deficient in constructional knowledge and has confounded together two opposite things.

We have often wanted a neat equivalent for the French "chantier," but we do not find a satisfactory one here. It is given as "timber-yard" and "carpenters' yard"; but "chantier," we need not say, has a wider meaning than that. "Building yard" is perhaps the best English equivalent, but it is a somewhat clumsy paraphrase, and in fact this is one of the cases in which a word in one language finds no corresponding word in another.

"Acroter, acroterion" we find in the English volume. There is no such word as "acroter" used in English: the hand of the German again is visible. "Amphiprostyle" does not appear, but this is perhaps not regarded as an English word, being really Anglicised Greek: though as "hypotrachelium" is included we do not see why "amphiprostyle" should be omitted. "Bolection" moulding, though an old-fashioned phrase now, is one for which a German or French equivalent may be wanted, but it is not known in the dictionary. "Baluster, balluster, or balister" (last two forms not English) is not known either in this country as applied to "the vase of a fountain." The primary meaning, "a little rail-column" is quaintly but correctly given. A baluster form is no doubt sometimes used to support a fountain, or a sun-dial, but it has no recognised signification in that respect. "Cantalever" (wrong spelling) and "modillion" are bracketed together as if they were the same thing, which they certainly are not. "Column" and "columnar" appear, but not "columniation," a word for which a German or French equivalent may certainly be wanted. "Hip—see Pinnacle" is an item that excites one's curiosity: it should seem that the editors have confounded it with "hip-knob," an old-fashioned expression for the finial to a hipped gable. "Dolmen" is not in the dictionary, but "menhir" appears, Germanised as "der celtische Steinpfeiler."

These examples are sufficient to show that the dictionary has suffered from the want of an English coadjutor, by whose assistance all the mistakes and omissions here noted, with others which we have observed, might easily have been avoided; and in all probability a French critic would be in a position to say the same about the French volume. As the ultimate appearance of a further edition or editions is confidently predicted in the preface, we recommend the learned German editors to obtain, before the issue of any further edition, the assistance of some English and French specialists in collating the dictionary, and thus save their book from errors which they would no doubt be the first to regret were they aware of them. It should be added, however, that these slips form a very small proportion of the whole, and that the book, with whatever imperfections it is at present to be charged, is a mine of information in regard to parallel technical phrases in the three languages with which it deals, and will be a most useful addition to the libraries of those who have to study German or French works on technical subjects.

* The "Dictionnaire Général et Grammatical des Dictionnaires Français" defines *moëllon* as "pierre du remplage aux murs de pierre de taille."

## NOTES.

THE London County Council, as we have already mentioned, are seeking to amend the Metropolitan Building Acts in several important particulars. We print in another column the text of their proposals with regard to this matter, which are contained in Sections 61 to 70 of the "London County Council (General Powers) Bill." We cannot here refrain from incidentally expressing our regret that no attempt has yet been made to codify and consolidate the now rather numerous Acts relating to building in the metropolis. The complexity of the existing Acts will be only further added to by the proposed new legislation interned in a "General Powers" Bill. We trust that when the County Council gets more thoroughly into harness it will give its early attention to this subject of the consolidation of metropolitan building law. With regard to the question of the definition of the general line of frontage, which has hitherto been in the hands of the Superintending Architect, from whose decision there has been no power of appeal, Clause 61 of the Bill proposes what will be deemed by many a fairly satisfactory tribunal of appeal,—viz., one member of the Royal Institute of British Architects, one member of the Surveyors' Institution, and one member to be appointed by the Council. When this clause came before the Council on Tuesday last, Mr. Brereton moved an amendment to the effect that the member to be appointed by the Council should not be an officer of the Council, but this amendment was lost, so that if the clause as it now stands becomes law, there would be nothing to prevent the Council appointing its own Superintending Architect to serve on this tribunal. But, for the reason which we enunciated more than a year ago,*—viz., that the tribunal of appeal should be entirely independent of the official from whose decision the appeal is made,—we trust that the Council will rarely, if ever, exercise the power which this clause, if passed, will confer upon them with regard to this particular point. Another amendment was moved to the effect that the appeal from the decision of the Superintending Architect should be to the whole Council, but this amendment also was rejected, after some few words from Sir John Lubbock and Dr. Longstaff, the last-named gentleman saying that the Council as a body would be the worst possible judge in difficult technical questions of that kind. Clause 70, restricting the height of buildings, is one which is greatly needed.

* See *Builder*, Nov. 17, 1888, p. 353.

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ON the Railway Rates Inquiry being reopened this week, considerable opposition was manifested on the part of the traders to the carrying out of the suggestion to which we referred last week, as to verifying the figures relating to the sixteen representative stations selected by the London and North-Western Company. The traders are divided on this subject, some agreeing to Lord Balfour's proposal, while others dissent; and Mr. Balfour Browne represents so many different interests that he finds it difficult to act so as to satisfy all. After a discussion which approached more nearly to "warmth" than has been the case at any previous sitting, Lord Balfour intimated that the Court adhered to the opinion that the terms of reference already suggested fairly met the case, and that the appointment of a skilled person to carry it out would be proceeded with. This point being disposed of, the chief goods manager of the North Western was examined. Among the papers put in was a statement showing that certain of the proposed new maximum rates were so favourable to the public that the latter would gain by their being substituted for the existing charges. These must be very exceptional cases, for of numerous examples from actual carriage accounts, which have come under our own notice, none have been of this nature, and we are convinced that the search for those discovered must have been anything but an easy task. We notice, however, that the revisions resulting from the recent conferences between the companies and the traders include a few substantial reductions. Several articles have been removed from Class B to Class A,—which has hitherto contained coal, coke, iron-ore, and slag only. The additions thus made to the lowest class include clay, limestone, and stone, and undressed material for road repair. There are other instances of traffic being removed to lower classes, in which they are merely restored to the position they previously occupied in the Railway Clearing House classification. Undressed granite, in blocks, for example, and common roofing and paving tiles, are moved back from Class C to B, and several other descriptions of traffic have been similarly restored to their original class.

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THE Duke of Westminster's letter in Monday's *Times* on "Overcrowded Cemeteries," though the main points in it are such as are familiar to those who have given any attention to the sanitary aspect of the subject, emphasises one point which is certainly not prominently enough before the public mind, viz.: that all the evils of overcrowded cemeteries arise really from the futile desire to preserve the remains of the dead, or at all events, from a system which could only be reasonably employed on the supposition that preservation was the object. What other explanation could be offered, as the Duke suggests, for the system of "spending much upon a mischievous durable coffin, often richly upholstered and mounted as if intended for use in daily life?" The embalming system of the Egyptians was logically in accordance with their peculiar belief as to the future of the body; but the enlightened Christians of a scientific age certainly own nothing in their creed which could give them a logical ground for an endeavour

to preserve the body as long as possible; without taking into account how very short after all is that possible time. The system advocated by the Duke of Westminster is that which fulfils the most practically the spirit of the words "earth to earth"; leaving the deceased body free to combine in the quickest manner with the natural earth, instead of boxing it up to germinate poison. A good many years ago, when public attention was especially called to this view of the subject by doctors, this journal stated its adoption of the earth-to-earth theory of burial as the right one. At that time, however, the possibly superior advantages of cremation had not been discussed and brought forward as they have been since; and it now remains, we think, to consider whether cremation is not the real solution of a painful problem after all. The essential difference between the two is, of course, only between a rapid or a slow decomposition of the elements of the body; but there may be some question whether even the laying of numerous dead bodies in close contact with the earth, within a comparatively restricted area, affords an entire escape from their insanitary effect on the living. It seems to be held that cremation does afford this immunity. But cremation has never yet been tried on a large scale. If it were introduced as the sole system for a large cemetery with numerous burials every day, the air may probably be laden with particles of matter given off during the conflagration. Which is least injurious, to have such particles distributed in the air around us or in the earth beneath us? That is the question which physicians and chemists have to answer for us.

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IN a short letter published in another column, Mr. T. G. Jackson protests against the suggestion of "C. F. M." in our last that a Minister of Fine Art should be created in order, among other things, to protect national monuments from being played with for private amusement as St. Alban's has been. With the spirit of Mr. Jackson's closing remark, that "the hope of art lies in the enlightenment of public taste and the awakening of public interest," we are quite in agreement; we remarked only a week or two back that the real cause of all this defacement of St. Alban's being possible is "the total want of a cultured public opinion about architecture on the part of the English press and the English public." But this opinion does not exclude the idea of the existence of a Ministry of Fine Arts (rather than Minister) as a means whereby an enlightened public opinion may practically express itself in regard to national work. That a Minister of Fine Arts appointed under present circumstances might be an utterly unfit and mischievous man we know by the history of the appointments to the office of Commissioner of Works, which is the nearest approach we have to a Minister of Fine Arts, and to which we have seen Mr. Ayrton and Mr. Shaw-Lefevre appointed in turn. But with a better-educated public opinion such unfit people would not be appointed at all to such a position; the appointments themselves would be affected by public opinion, which they would more or less represent. That the "Ministère des Beaux-Arts" in France is in the main a beneficial institution we have little doubt; but it is so because it is the representative of a public interest in art more general and better instructed than is to be found in England.

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A PUBLIC appeal has been made by the Bishop of Rochester for the restoration of St. Saviour's, Southwark. The choir and lady chapel, the only ancient portions of the church, were restored, in a very conservative spirit and with every regard to durability, under the direction of Gwilt. The restoration scheme therefore really means the removal of the bad modern Gothic nave, built 50 years ago, and the substitution of a better one. The existing nave is as contemptible a piece of architecture as it is said to be; but if the object is to replace it by a nave which is to look exactly as if built in the thirteenth century, we very much question whether the game is worth the candle. Something beyond mere imitation Gothic ought to be attempted, at all events.

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MR. CHARLES WALL, one of the contractors whose name has been prominent recently in connexion with the complaints in regard to the bad construction of London School Board Schools, wrote to the *Times* of Saturday last in regard to some of the charges made against him, to the effect that the whole of the drains laid by him at Park-walk schools were inspected and passed by the Board's officers before they were covered up, and that with regard to no provision having been made for ventilation, nothing was specified; "if a ventilating-pipe has been fixed at all, it was an after consideration, as there were none included in my contract." Mr. Wall adds:—

"Before the public form any opinion as to the drainage of schools built a few years ago, and of those which are now being erected, they ought in fairness to compare the respective specifications. The whole system of drainage is now everywhere being entirely revised, and that in use by the London School Board and other large institutions at the present day is entailing a far greater expenditure than the old style, but as a builder, and also as a ratepayer, I quite agree with the outlay."

As no denial of these statements on the part of the architectural authorities of the School Board has appeared, we presume they are correct, and if so, they confirm us in the opinion we had already begun to form, that the contractors have been to a great extent made scapegoats for evils mainly due to an inefficient system and a dangerous desire for economy.

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IN another column we print the reply sent in to the London School Board by Mr. Warren, the Clerk of Works who was dismissed from the employment of the Board on account of alleged neglect of duty in regard to the construction and materials of Woodland-road School. We observed a fortnight ago that the Clerk of Works' reply, both in fairness to him and as an additional means of getting at the truth, ought to have been made public. In some respects the reply does not make a very good case. In regard to the important question of the mortar, Mr. Warren denies any use of "burnt ballast and half-burnt clay" as a base for the mortar, stating that until the building was nearly finished there was no such stuff on the ground; but we observe he does not deny that the sand was not the best for the purpose, the chief defence being that it was the same as was being used by the London, Brighton, and South Coast Railway Company at the new buildings at Gipsy-hill Station. These buildings, however, are of slight and unimportant character, ordinary small station buildings, and certainly could not be taken as a rule for what should be required in the construction of a large school building. About the tiles and some other matters it appears to us that the explanations given are satisfactory; and the statement of the writer that he had charge of two other schools at the same time, one two miles and the other six miles off, goes further to confirm what we have said above, that the Board's own system, of making one person do the work of two, is to a great extent responsible for the opportunities, at least, which were left for the smuggling in of bad materials and bad work.

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WE print the following circular which has been issued by Messrs. Peto Bros., the contractors, to their foremen and workmen. As an attempt to put the relation between employer and working man on a ground which gives them a community of interest in the carrying out of the work, the document is worth public attention:—

"Messrs. Peto Brothers having been selected by the London County Council to carry out the building of the Cane Hill Asylum (Extension), on the existing recognised rates of wages, consider the opportunity a favourable one for giving effect to a system they have been considering for some time of identifying as far as possible their interests with those of their workmen.

They therefore propose to give the men one quarter of the whole net profits on the contract, which will be paid in addition to the wages before named.

All the men engaged by Messrs. Peto Brothers on this contract will be entitled to their share of profits, which will be calculated at a percentage on the wages earned, as shown by the weekly time-sheets (*as for example, on a* 10,000*l. contract, assuming the wages earned to be* 3,000*l., and the profit* 1,000*l., there would be* 250*l. to divide amongst the men, equivalent to* 8⅓ *per cent., or* 1*s.* 8*d. on every* 1*l. of wages*).

All right to participate in the profit will nevertheless be forfeited (*a*) By any who earn less than a total amount of 5*l.* in wages on this contract. (*b*) By any who may individually or in combination do anything tending to diminish the profits on the contract by neglecting their duties, misconducting themselves, wasting their time, or by joining any strike for shorter hours, or for wages above the existing recognised rates of wages, on which the tender for the above-mentioned contract was based, whether the strike be general or otherwise. (*c*) By anyone who may do anything tending to damage the character of the firm for good and honest work.

The shares of any men so forfeiting their claims to be added to the shares of the others.

Payment of the men's shares of profit will be made as soon as the accounts for the job are settled, and will be paid only to them individually or their legal representatives, and the date will be advertised by notice in the newspapers, and at the works at Gillingham-street.

Each workman must see that he has a printed ticket given him by the timekeeper, signed and dated by him, and countersigned by the general foreman of the job before commencing work, giving his name, number, trade, rate of wages, &c., and again signed, dated, and countersigned by them on his leaving.

This ticket must be produced when claiming share of profits, and no claim will be entertained unless such ticket is so produced.

The men are invited to nominate a competent representative to attend at the office of the firm and examine the accounts relating to this contract and to sign a balance-sheet of the same, which will be prepared by Messrs. Peto Brothers' regular auditor, Mr. J. R. Reynell, of 8, Adelphi-terrace, Strand.

This offer being a purely voluntary one on Messrs. Peto Brothers' part, they reserve to themselves the full and absolute right to decide any question which may arise in connexion therewith, and to make any further rules or regulations that they may deem necessary from time to time. Their decision to be final and without appeal.

Should this attempt to unite the interests of employers and employed be as successful as Messrs. Peto Brothers hope, they intend to apply it, so far as may be found feasible, to all works undertaken by them in the future, having full confidence that it will be to their mutual advantage if it has the hearty co-operation of the workmen.

The men engaged on this contract have therefore not only their own interests in their hands, but those of their fellow-workmen."

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AT the meeting of the Southend Local Board on the 3rd inst., it was resolved that the salary of the Surveyor, Mr. P. Dodd, be increased, as from Christmas next, by 50*l.* per annum. The *Southend Standard*, in reporting this incident, heads it "Extraordinary Liberality!" Whether this is meant as the *Standard's* deliberate opinion of the matter, or whether it is its way of twitting the Local Board with a departure from the even tenour of a parsimonious policy, we do not know, as there is no editorial utterance on the subject, except the heading in question. Neither are we informed of the existing salary of the Surveyor. But the report of the discussion on the motion is, as such reports are apt to be, somewhat amusing reading, though the amusement temporarily derived therefrom quickly gives place to a feeling of astonishment that members of local authorities should be found so deluded as to suppose that by haggling about a few pounds a year in the salary of so important and essential an officer as a Surveyor and Building Inspector they are studying the interests of the ratepayers, or, as Mr. Pawley put it, "the benefit of the place." That the Surveyor of Southend has plenty to do is apparent from the remarks of the Chairman of the Local Board, who said

"At every meeting you find we keep increasing the work of our Surveyor in every direction. We have just now called upon him to carry out a very large sewerage scheme. I hold that every servant is worthy of his hire, and I think it is our duty to increase our Surveyor's salary by 50*l.* a year at the least. He is at work from six o'clock in the morning

till ten o'clock at night. I think we really work our officer too hard, and it is incumbent on us to recognise his work in the only way we can, by compensating him in the shape of increasing his salary."

In opposition to the proposal, Mr. Pawley said he "could not see why the Surveyor's salary should be increased." In justice to Mr. Pawley, it must be said that while (according to the report) he really thought that the Board would "not get any more [work understood] done" by "rising" [*sic*] the Surveyor's salary, he was for the appointment of "a building inspector," so as to relieve the Surveyor. Mr. Pawley disclaimed any idea of speaking against the Surveyor: he spoke, he said, "for the benefit of the place." There may be something in Mr. Pawley's contention, but a "building inspector" or any such officer is not very likely to be a thoroughly competent and reliable man unless he is offered a decent salary. Southend is a large and growing place of residence and an increasing seaside resort, and, in the interests of residents and visitors alike, it should not be niggardly in remunerating officers responsible for maintaining its health. Other and more important marine resorts than Southend have ere now had to learn the bitter lesson that cheeseparing in such matters is the very reverse of an economical policy in the long run.

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DR. SPEAR'S report to the Local Government Board (dated October 26) on the prevalence of typhoid fever in the Urban Sanitary District of Longton, Staffordshire, is, owing to the peculiar circumstances of the case, less definite in its conclusions than most of these reports. The water supply of the district appears to be from several sources, the water being a good deal mixed in distribution; and though some of the samples of water analysed were not immaculate, there does not seem to have been sufficient fault in the water to account for an extensive prevalence of typhoid: nor is the general system of drainage charged in the report with such defects as would probably give rise to disease. The origin most clearly pointed to by the investigations is what is described as "a barbarous system of excrement disposal." The houses referred to as visited by the disease all have cesspool privies, "roughly constructed and no doubt leaky"; and elsewhere it is observed that the histories of the cases investigated "point to defective local sanitation, or more particularly to the storage of excrement about dwellings." The following recommendations are appended to the report:—

"1. The Sanitary Authority should adopt measures for the removal, as promptly as possible, of all excremental and other filth from the vicinity of dwellings. To this end—(*a*) Water-closets should be adopted throughout the borough as universally as circumstances permit; and at houses which, at present, cannot be served by water-closets, the Authority should not allow the contents of privies to accumulate longer than a week. (*b*) Careful inspection should be made to discover defects of drainage as well as pollution of soil by excrements; and means for the abatement of such defects should be adopted without delay.

2. The Sanitary Authority should be on the watch for any sources of contamination of the water supplies of the borough, both at the origin of any supply and in the course of the distributing mains. The indications afforded in this report of impurity at certain reservoirs, and also of dangers that may arise to water within the pipes, should be impressed on the North Staffordshire Water Company; and other steps should be taken, if these became necessary, for securing the inhabitants of the borough from danger of all pollution to their water supplies."

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SOME American admirers of Goethe in New York have formed themselves into a Committee for the purpose of erecting a monument to his memory in Central Park. Mr. Henry Baerer has been commissioned to execute the work, which will cost 30,000 dols. The design consists of a statue considerably above life-size, upon a pedestal, at the four canted corners of which are groups of two figures, namely, Faust and Marguerite, Orestes and Iphigenia, Herrmann and Dorothea, and the Harper and Mignon.

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AMONGST the tenders that were printed in our columns on November 23 last was a list of those for an extensive rebuilding at the "White Hart," Windsor. It is believed that a portion of the old premises which will be pulled down is a relic of the "Garter Inn," wherein Falstaff says, "I sit at ten pounds a week," and is called by mine host "an Emperor, Cæsar, Keisar, and Pheezar." Shakspeare lays several scenes of "The Merry Wives of Windsor" in the Garter Inn, and the text of that play shows he was well acquainted with the town and the locality. The Garter Inn is cited in a schedule of the rents, resolutes, &c., belonging to the Corporation, under date July 21, 1562. In that year "mine host" was Richard Gallys, mayor, and one of the two Borough members. The name occurs in other local accounts for 1633, 1636, and 1663. An entry in Theodore Randue, the chamberlain's, accounts for receipt of rent, in 1689, is noteworthy as fixing the inn's situation. That entry stands thus:—*

"Clarke, Isaac, for the fronte of the White Harte ... ... ... 01 00 00
More, for the fronte of the two next houses, anciently the Garter Inne ... ... ... ... 01 00 00."

The Garter Inn, in fact, stood next to the White Hart, in High-street, westwards of Garter's Tower, Lower Ward, and Castle-hill. The two inns, together with their sign-posts and cross-beams, are clearly delineated in Norden's view, *à vol-d'oiseau*, of Windsor Castle, 1607 (Harl. MSS. 3749).

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LADY students have taken a remarkably prominent place among the Royal Academy prize-winners this year, the Turner medal, the Creswick prize, and the prize for decorative painting having all been taken by ladies. The paintings for the Turner medal are of better quality than in some previous years, showing more reserve and refinement and less striving after "powerful" effects: but the prize is gained by Miss Ursula Wood for the one painting which seems out of keeping in subject and character with the idea suggested by the words "Turner medal," inasmuch as it is a foreground study of farm buildings with morning light on the walls and a cock crowing (the subject being "Hail smiling Morn"), whereas the "*proxime accessit*" work (21) by Mr. F. Dickson, a tenderly-treated early morning effect, seems much more the kind of thing Turner desired to encourage. No. 19 showed a bright treatment of foreground and water, but the artist had not succeeded in getting light into the sky. Miss Elizabeth Nichol's painting which gained the Creswick prize is a very good work, nearly equally by Miss Helen Flews, "*proxime accessit*." The subject for the gold medal for a figure painting was "An incident of the Deluge"; among the works submitted want of imagination and of any realisation of the scene intended is the failing nearly everywhere; they are mostly simply figure studies. Mr. H. J. Draper's painting which gained the prize is the best and most forcible in conception; it represents persons who have taken refuge in a cave outside which is seen a tremendous downfall of rain; the best figure is the woman crouched in the foreground with a scowl on her face. Miss Gertrude E. Demain Hammond's design for decoration, "Harvest," is a warmly-coloured painting in frieze style, with a row of early Doric columns in the background, which has a good decorative effect though a little stiff in the drawing; the full-size cartoon of three of the figures is very good. Among the life-size cartoon figure studies (subject "Lady Macbeth") Mr. Montford's, though it is not Lady Macbeth, undoubtedly merited the prize it has received as the best drawn and most reasonably conceived design; some of the figures are in the wildest melodramatic vein. The sculpture prize (subject "Parting") is rightly given to Mr. W. Goscombe John for his finely-modelled and pathetic figure of an old man seated with his apparently dying child (or grandchild) with hands clasped in his; but the expression is somewhat too painful for sculpture, and the composition and idea of No. 267, "*proxime accessit*" by Mr. Fehr, is finer and more sculpturesque; the group consists of husband and wife seated, a child in front throwing its head back towards them; a helmet tells the tale of another parting of Hector and Andromache. The architecture, we regret to state, is far the weakest show; the gold medal has not been awarded, and the 25*l.* prize "for a set of architectural designs" is very easily won. Mr. G. H. Jacques, the winner of the first silver medal for architectural drawing, shows some careful measured drawings of the Hall at Hampton Court. The drawings of the travelling student abroad in 1888, which are hung, are however a fine collection, especially some detail studies from St. Marks.

* See Tighe and Davis's "Annals of Windsor," 1858.

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THE Winter Exhibition of the Society of Painters in Water-colours loses a good deal through the non-appearance of Mr. Hunt and one or two other leading members, and drawings are hung in places of honour, apparently more on account of their size than for any other reason, which do not reflect equal honour back on the Exhibition. The most remarkable work there is Mr. Burne-Jones's decorative painting of "Allegorical Statues in the Wall of the Garden of Idleness" (224), an architectural screen with coloured marbles and carvings and niches, and a series of remarkably-conceived bronze statues of various vices and miseries, very powerfully drawn. Mr. Bulleid's "A Suppliant" (285) is a remarkable drawing of statuettes and a marble background, with a girl's ivy-wreathed head relieved against it. The late Mr. F. Tayler's studies of horses are of much interest. Among the best works are Mr. R. W. Allan's "French Peasants arriving for the Vintage" (66), a semi-impressionist work in dabs of bright blue; Mr. Pilsbury's wonderfully-finished landscape (102); Mr. Cuthbert Rigby's "Glimpse of the Esk" (113), a lovely landscape in pure water-colour; Mr. Tom Lloyd's "Barley" (137); various figure sketches and studies by Mr. Walter Crane; Mr. Arthur Hopkins's "On the Jetty, Monkshaven" (279), with an admirably-studied group of figures in the foreground; "Study of Argyll's Bowling-green, Loch Goil" (282), by Mr. Colin B. Phillip; "Florrie" (292), and "Near Sandown" (298), by Mrs. Allingham,—the latter especially beautiful; Mr. G. A. Fripp's "West Coast of the Island of Sark," a study (196); and Mr. A. Goodwin's two little drawings of the "Falls of the Rhine" in autumn and spring (326 and 363).

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IT appears as if the Sheffield competition conditions were at present to be regarded as a kind of bible or sacred book of statutes for promoters of competitions. At all events the conditions for the competition for new baths on the Montpellier estate at Harrogate, just sent to us, exhibit a touchingly devout study of the Sheffield conditions. The same description of drawings are required to the same scale; the drawings are to be accompanied by a sealed envelope containing the author's name and address, and "when each case is unpacked, it, and its contents, will be marked by the Corporation authorities for identification, but no distinguishing mark, or motto, or device is to be put on the drawings." Imitation is the sincerest flattery.

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**The Battersea Polytechnic.**—The *Morning Post* says that Mr. Evan Spicer, the Chairman of the executive committee for the establishment of Polytechnic institutes in South London, has signed an agreement for the purchase of a site for the proposed Battersea Polytechnic. The site is between the Battersea Park-road Board School and the grounds of the Albert Palace, thus having a long frontage to the Battersea Park-road. Of the 60,000*l.* required to carry out this scheme and secure the endowment of it by the Charity Commissioners, only 12,000*l.* remains to be collected, which the Committee expect to secure within the next few weeks.

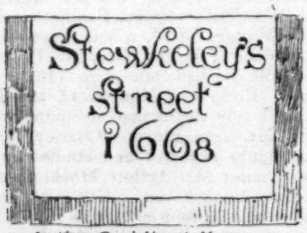
## LONDON STREET TABLETS.

There are comparatively few of these remaining at the present time. Corner sites have been largely rebuilt, and the old panel has been removed, perhaps, to a builder's yard, and its place has either been taken by a painted name or an enamelled plate. In some of the older parts of London, where streets of the last century have remained undisturbed, the old tablet is still to be seen.

The end of the seventeenth and the beginning of the eighteenth centuries seems to be the period at which they were put up. There are two in the Guildhall Museum. One from Gardiner's-lane, Upper Thames-street, dated

From Gardiner's Lane
now at the Guildhall Museum

1670, was presumably a gardener of the period, with a formidable looking spade. It measures about 2 ft. 3 in. by 1 ft. 9 in., and is slightly arched at the top. The second is a good white marble tablet about 2 ft. by 1 ft., with the name




At the Guildhall Museum.

Stewkeley's-street, 1668, carved in a bold style. The marble is let into a darker stone, giving a 3in. margin at the sides and bottom. The lettering itself is about 2 in. high, and the capitals in proportion. There is also an example from Broad-street-buildings, dated 1737, a slate slab with large lettering.

N°12 Walbrook

In the middle of Walbrook, between two windows on the first floor, is a very good panel, dated 1668. This is perhaps not a street tablet, but simply refers to the date of the house on which it is placed.

In the neighbourhood of what is now called "Mount-pleasant" are two or three examples in brick. The first is in the lower part of the street, opposite the end of Elm-street. It is a plain, square stone, with "Dorrinton-street, 1720," carved in ordinary Roman capitals. The stone is placed in a brick frame, with a moulded hood, and the whole corbelled out from the wall about 1½ in. Higher up the street, nearly opposite the jail, are two more, one of the same design as the one just described, and bearing the name, "Baynes-street, 1737." Over this is a much more elaborate example, also in moulded brick, with a pediment. The panel itself has an inscription,

From Mount Pleasant

"In God is all oure trust," and below are some signs, one of which seems to be a T-square and the date, 1737. A panel somewhat similar to this occurs in one of the old streets at Gravesend.

There is another form, later in date, and of more elaborate character, of which one or two examples still remain. Generally speaking, it is a convex shield of irregular outline, surrounded by the scrolls so often used in the seventeenth and eighteenth centuries,—more particularly the latter. The best is perhaps that at the north end of Great James-street, dated 1721. The house has been recently

"done up," and the tablet has unfortunately received a coating of paint, which has not improved its appearance. Another is built into a house in Princes-street, Westminster, and was once in Princes-court hard by, but was probably removed when the corner house was rebuilt. A third example is built into the corner house of Cecil-street, Strand, but is too high up to be properly seen.

It is to be regretted that when corner sites are rebuilt in the present day some place is not left in the design for the name of the street. At a convenient height from the ground, to be easily seen by passengers on foot, and by those in charge of vehicles in the streets, it would be a decided improvement on the present treatment. In a great many cases the name of the street is partially hidden by the top of the shop-front, and in others is so high up as to be almost useless,—quite so in foggy weather. That there is a great variety in the way which these tablets may be treated is hardly to be questioned, and, with the revival of taste for Renaissance work in our street architecture, they would be in accordance with their surroundings. The examples which have been given have, some, it is true, been archæological rather than architectural,—such as that from Gardiner's-lane. Others might be called commonplace, and perhaps ugly; but there seems to have been at that time a genuine attempt to make the street-corner both useful and ornamental,—an attempt which we should do well to imitate at a time when London is being so largely altered and rebuilt,—especially in the west.

The same argument applies equally to the tablets put up in many places to commemorate the birthplace or residence of famous men. These, again, are at present all of nearly similar design,—if design it can be called,—and in many places, like the street names, too high up to read.

## SIR FREDERIC LEIGHTON ON SPANISH ARCHITECTURE.

Sir Frederic Leighton, P.R.A., distributed the prizes to the students of the Royal Academy on Tuesday evening last. In the course of the address which he subsequently delivered, he said (as reported in the *Times*):—

Let us now glance briefly and in order at the fortunes of the several arts in Spain, and first let us consider its architecture. The limits of our time must necessarily restrict me to the merest outline of our subject. We are, however, concerned not so much with special examples as with general phenomena of artistic evolution, and these may, I hope, be made fairly clear without excessive elaboration. Fortunately, also, those who desire further acquaintance with the architecture,—at least with the Gothic architecture,—of Spain have access to it in the work of an artist of genius and a man of learning, in whom the Academy not long ago lost an honoured member, Mr. Street. In using his work, however, you must make allowance for a vehement impatience of whatever does not fall within certain forms of art, and must not be unduly terrified by the word "Pagan." You will there read how, from the earliest times, a foreign influence was stamped on the work of the church-building Spanish race, an inspiration sometimes Romanesque and sometimes Byzantine in character, sometimes Aquitanian and sometimes Burgundian; Lombard Italy, too, we shall find here and there contributing a feature. In Leon we see later on a cathedral more purely French in character and design than any other in Spain; yet later, German elements, especially in ornament, are everywhere met. Finally, the Renaissance movement, to Italy the source of her highest achievements, but to Spain a baneful influence enough, asserted itself here as elsewhere. Now, you have observed in this summary enumeration that the dominant influence in Spanish architecture up to the sixteenth century was French, and this early French supremacy will not surprise you when you consider that the boundary of Spain was not then, as now, the Pyrenean range, and that the Spanish clergy was largely recruited from France. I call your attention to this circumstance as contrasting with the preponderating influence of Flemish art which we shall note when we speak of Spanish painting, and as marking the absence of any definite indigenous impulse. And of this want you will be made further conscious when, on closer examination of the chronology of Spanish architecture, you mark the simultaneous erection of buildings denoting in their character different periods, and when you see details of different and antagonistic styles picturesquely but incongruously elbowing one another in the same edifice, and become aware of the absence of any such continuous and organic development of a style as you witness, for instance, in the Gothic architecture of your own country. Nevertheless, while the Spaniards lacked the originating impulse in art, their ecclesiastical architecture was, even at an early date, often beautiful and always striking. Palomino, pious man, lays down in his "Museo Pictorico" a proposition concerning the origin of art in Spain which may here find a place, a proposition, however, on which you may feel disposed to suspend your judgment in the absence of further evidence. "St. James, the Apostle," he says, "when he came to preach Christianity in Spain, brought with him a number of images, the work of the glorious Evangelist, St. Luke; although those," he continues, "which were carved or in the round were, it is said, from the hand of Nicodemus, tinted only

by the Evangelist, of whom authors affirm,"—and here, in a note, a long array of Patristic authority,—"that he was only a painter, though I see no difficulty in his having been a sculptor also." Well, whatever may be the extent of our direct obligation to St. James, we owe to him indirectly the earliest of the great cathedrals which are the just boast of Spain, the Church of Santiago de Compostella, the work, however, not of a Spanish, but of a French architect, and, in fact, the twin design of St. Sernin at Toulouse. A cast of its famous "Portico de la Gloria" is familiar to you at the South Kensington Museum. I have drawn your attention to the fact that we much miss in Spain any definite process of architectural evolution; an exception should, however, to some extent be made in Catalonia, where a local style of pointed Gothic was formed of a distinctive and striking character. Again, there is in Castile a group of churches in which the addition of external open arcades,—sometimes, as in the case of San Vicente at Avila, on one flank, sometimes, as in the churches of Legovia, on two,—has the happiest effect, and may be said to constitute a type proper to this region. And it should be added that the Spaniards, whatever their æsthetic limitations, seized with an incomparably more powerful grip on the Gothic idea than ever did the Italians. I know of few things more curious than the absolute inability of the latter,—the most shrewd and subtly-gifted people of their day, and saturated with the artistic sense,—to grasp the spirit of Gothic architecture. Certain Gothic forms, indeed, they adopted; they pointed the openings with which, in obedience to their native instincts, they sparsely pierced the broad spaces of their walls; they made liberal use of crockets and unmeaning pinnacles; they accepted the vault, which is called the formative principle of Gothic building; but to the seed of life that lay in the principle of the vault they remained blind. An organism sustained by the balance of living forces, clothed in forms arising out of and expressing its constructive principle, and enriched with decoration emphasizing it, must not be sought at the hands of the Italians; indeed, in the matter, especially of external decoration, the use of the style seemed at times to paralyse their wits; for let no delight of mellow marbles, no glamour of age, no perfume of pleasant association, blunt your sense to the unfathomed foolishness, for instance, of their too frequent treatment of the façades of churches,—witness, amongst others, that of San Michele at Lucca, which, towering by a third of its height above the building it masks, fitly expresses the vertical division of that building by innumerable rows of small colonnades piled in horizontal profusion one on the top of the other. Well, though you do not find in Spain the superbly logical development of this Frankish style that characterises the country of its birth, you do find the Spaniard alive to its vital conditions, and treating it as a plastic malleable thing; and you find him further imparting to it,—for good or for evil,—a strong impress of his own idiosyncrasy. The churches which mark the first centuries of the partially recovered independence of his country are instinct with the gloomy fervour and the masculine sobriety of his race. I know no two churches in any land in which this quality of masculine sobriety has more powerfully impressed me than the cathedrals of Taragona and of Avila. The former is artistically the completer work in its more perfect balance of vigour and elegance, of unadorned spaces and enrichment; but it may be doubted whether the church in Avila, with its apsidal end carved bodily out of a bastion of the old town wall, is not even more impressive. The simplicity of these early churches is, of course, missed in the churches raised or completed during the days of heightened national self-consciousness and greater material prosperity, and gives place often to an unpruned exuberance of ornamentation in which the craving for the excessive, a craving unchastened by restraint of delicate taste, which was rapidly becoming a distinctive Spanish attribute, is strikingly displayed. We feel, however, that if in their sacred edifices the Spaniards fell into decorative incontinence, they were prompted, in part at least, by the impulse to give without stint whatever they thought their best to the exalting of their faith; and if their tendency to extreme enrichment led to regrettable excesses,—to the abuse of gold, for example, and to absolute orgies of gigantic bosses, of flaming crockets, and of exorbitant armorial bearings,—we owe to it a decorative feature unique in its kind, always striking, and often of great splendour, the retablos. These structures, rising tier upon tier from the backs and flanks of the consecrated table, present in their blending of architecture, sculpture, and painting, a decoration sometimes, no doubt, barbarous, but often in a high degree impressive. To this tendency also we owe the development of the rejas, the noble metal screens which in a Spanish church close not only the choir and the capilla mayor, but also every recessed, lateral chapel. These screens, frequently admirable in design, rich and elegant in form, and judiciously relieved with colour and the precious metals, are an absolutely original creation of Spanish art, and conspire with the sumptuous retablos to give to Spanish cathedrals that gorgeousness of aspect in which all others lag far behind them. But if the churches of Spain are gorgeous in their aspect, their splendour is often tempered with a solemn gloom. The withholding of light seems to me to have been an object of study with the Spanish ecclesiastical architects, for it would, I think, be a very superficial view to regard the darkness of their churches as aiming solely at shady coolness. And I must, even at the risk of seeming fantastic, believe that under an impulse both characteristic and poetic, this gloom was occasionally produced and gathered up with definite intent to enhance the mystery of the sacrifice at the High Altar. In the cathedral of Barcelona, a church in which, according to Catalan custom, the lights are very restricted, a lantern is raised over the western bay of the nave, which bay, being made square, in order to carry the octagon, is, of course, larger than the others. The result is that the worshipper, entering from the west, finds himself in a broad, illuminated space, beyond which, as his gaze is drawn on towards the capilla mayor, brooding shadows seem to increase and thicken, intensifying that deep solemnity of coloured darkness which marks this church even amongst the most impressive in Spain. Nor is this the only instance I could quote of a similar effect produced, as I must believe, intentionally. But I may not linger unduly over one branch of my subject, and, with a few words on the effect of the Renaissance movement in Spain, I will pass on to other topics. This movement resulted first in a style known as the "Plateresque," the silversmith's style, which bore fruit in some very picturesque, if not very pure, specimens of architecture, but which did not supersede the intricate half-German Gothic at that time in force. On the contrary, the two styles jogged on side by side, often by a friendly compromise, and in most admired confusion, on the surface and in the structure of the same building. Later on a more severely classic style began to assert itself, but never with results wholly satisfactory; its efforts were frequently feeble and generally unscholarly. One artist, Diego de Siloe, sought in a vast cathedral to blend classic forms with Gothic construction, and those who wish to see what disastrous results may attend such an attempt in the hands even of a capable man are referred to the cathedral of Granada. On the other hand, if you would see how much a man of mediocre gift may, obeying, perhaps unconsciously, the spirit of his age, embody of that spirit in a pile of stone, you will be inclined to view with more interest than is generally vouchsafed to it by artists, the palace-convent of the Escorial. A huge, forbidding block of buildings, turning a blind, blank back on the world, which seems to stretch out indefinitely below it, raised on a slope hemmed in on three sides by an amphitheatre of barren rocks, admitting light through fewer and smaller openings than ever pierced so large a surface, rigorously bare of any adornment, it seems to me to gather up in its expression the very essence of crushing, silent, inexorable tyranny. When, in due course, the "Rococo" in art began everywhere to reign, the Spanish itch for the excessive seized on it with avidity, and in the palace of the Marques de dos Aguas, in Valencia, you may see the supreme effort of its most lunatical vagaries.

**The New Opera-house in Stockholm.**—Three designs have been invited and furnished for the new Opera-house to be built in Stockholm, but none has as yet been selected. It is to be situated in the market square of Gustavus Adolphus, and the work will shortly be taken in hand

## PROPOSED AMENDMENTS OF THE METROPOLITAN BUILDING ACTS.

THE London County Council, in their General Powers Bill, which is to be submitted to Parliament next Session, are seeking to make certain amendments in the Metropolitan Building Act. We give the text of the sections in which the new powers are sought:—

"60. *Approval of Plans under 'Metropolitan Building Act,'* 1855.—The approval by the Council of any plans or particulars under the provisions of the 'Metropolitan Building Act, 1855,' or any Act amending the same, shall be signified by writing under the hand of the Superintending Architect of Metropolitan Buildings and countersigned by the Chairman or acting Chairman for the time being of the Building Act Committee of the Council or by any other person appointed for that purpose by the Council.

61. *Appeal against Certificate of Architect as to General Line of Buildings.*—The Superintending Architect shall within fourteen days after certifying the general line of buildings in any street, place, or row of houses, cause a notice of his certificate to be given to or served on the Vestry or District Board of the Parish or District and to be given to or served on the owner of the building or land in reference to which the general line of buildings has been certified, and on the owner of the next adjoining houses or land upon each side of the building or land in reference to which the general line of buildings has been certified. And such notice may be given or served in accordance with the provisions of Section 98 of 'The Metropolitan Building Act, 1855.' The Vestry or District Board, or any person deeming himself aggrieved by the certificate of the Superintending Architect, may, within fourteen days after notice of such certificate has been given or served, appeal to a tribunal to be constituted as hereinafter provided:—One member to be from time to time appointed by the Council; one by the Royal Institute of British Architects; and one by the Institution of Surveyors; and every such appeal shall stand referred to such tribunal, who shall have power to confirm or reverse or vary such certificate, and the decision of such tribunal, whether it confirms, or reverses, or varies such certificate, shall finally determine the general line of building, and such tribunal may order any costs of any such appeal to be paid to or by the Vestry or District Board or person appealing.

62. *Power to authorise Larger Buildings without Party Walls.*—Notwithstanding anything contained in 'The Metropolitan Building Act, 1855,' section 27, sub-section 4, a warehouse or other building used wholly or in part for the purposes of trade or manufacture may, with the consent of the Council, contain any number of cubic feet exceeding 216,000, but not exceeding 450,000, without being divided by party walls, or if consisting of more than one division, every or any division thereof may, and with the like consent, contain more than 216,000 cubic feet, provided it do not contain more than 450,000 cubic feet.

63. *Centre of Roadway.*—The term 'centre of roadway' in relation to any passage or way not formed into a road shall mean the centre as determined and laid down by the Council, and the centre of the roadway when so determined and laid down, or the centre of the roadway of any road, passage, or way which has been formed as a road, shall not be altered without the consent of the Council.

64. *Power to Council to make Bye-laws with respect to Materials for Plastering, and within 3 ft of Sites.*—The Council may from time to time make, alter, and repeal such bye-laws as they may think expedient with respect to the following matters:—(1) The description and quality of the substances of which plastering is authorised to be made; (2) The mode in which and the materials with which any excavation made within a line drawn outside the site of a house, building, or other erection, and at a uniform distance therefrom of 3 ft., shall be filled up; (3) The duties of District Surveyors in relation to such plastering or excavation, and the regulation of the amounts of the fees to be paid to such District Surveyors in as part of the duties imposed upon them by any such bye-laws; all the provisions contained in Sections 202 and 203 of 'The Metropolis Management Act, 1855,' as to the making, publication, and evidence of by-laws and as to penalties for breach of the same, and the remission of such penalties, shall extend and apply to the making,

publication, and evidence of by-laws made by the Council, under the authority of this Act, and the penalties for breach of any such by-laws and the remission of such penalties.

65. *Use of Houses, &c., as Public Buildings.*—It shall not be lawful to use or to convert or alter into a public building any building erected for a purpose other than a public purpose, without the consent in writing of the Council, and the Council may give their consent, subject to such regulations and conditions as they may think fit. Any person using as, or converting or altering into a public building, any building erected for a purpose other than a public purpose, without the consent of the Council, or without the observance of all the terms and conditions on which such consent has been given, shall be liable to a penalty not exceeding 5*l.* for every first offence, and to a further penalty not exceeding 40s. for every day on which such offence shall continue after the day on which the first penalty is incurred, to be recovered by summary proceeding.

66. *Notice to be given to the Vestry or District Board of building or demolishing any house, building, or wall.*—Every person who shall intend to build or take down any house, building, or wall, within 30 ft. of any public thoroughfare shall give notice of such intention to the Vestry or District Board of the parish or district in which such house, building, or wall is situate, and shall, before commencing to build or take down any such house, building, or wall, cause to be put up such hoard or fence, with a convenient platform and handrail, if there be room enough for the same, to serve as a footway for passengers outside of such hoard or fence as the Vestry or District Board may think to be proper and sufficient, and shall continue such hoard or fence and such platform and handrail standing and in good condition to the satisfaction of the Vestry or District Board during the building or taking down of any such house, building, or wall, unless the Vestry or District Board shall give their consent in writing to its previous removal, and shall, when required so to do by the Vestry or District Board, cause such hoard or fence and such platform and handrail to be well lighted during the night. Every person who fails to give such notice to the Vestry or District Board, or who commences to build or take down any such house, building, or wall without causing to be put up such hoard or fence, with or without such convenient platform and handrail, or who does not continue such hoard or fence, with or without such convenient platform and handrail in good condition, to the satisfaction of the Vestry or District Board, as aforesaid, or who does not, when required so to do, cause such hoard or fence, with or without such platform and handrail, to be well lighted during the night, shall, for every such offence, be liable to a penalty not exceeding 5*l.*, and a further penalty, not exceeding 40s., for every day on which such offence shall continue after the day on which the first penalty is incurred, to be recovered by summary proceeding.

67. *Buildings Abutting on more than one Street.*—The Superintending Architect to the Council, for the time being, shall, in setting out the general line of building in any street, place, or row of houses, decide, so far as affects any building, structure, or erection to be erected after the passing of this Act, and which will abut on any other street or streets, place or places, or row or rows of houses, the general line of building in such other street or streets, place or places, or row or rows of houses, and no building, structure, or erection to be erected after the passing of this Act shall, without the consent in writing of the Council, be erected beyond the general line of building, in such other street or streets, place or places, or row or rows of houses, in case the distance of any such general line of building from any highway does not exceed 50 ft., or within 50 ft. of any highway, when the distance of any such general line of building therefrom amounts to or exceeds 50 ft., notwithstanding there being gardens or vacant spaces between the general line of buildings and any highway; and in case any building, structure, or erection be erected or be begun to be erected or raised after the passing of this Act, without such consent or contrary to the terms and conditions on which the same may have been granted, the owner or occupier of the premises, or the builder, shall be deemed to be engaged in a work contrary to the provisions of Section 75 of 'The Metropolis Management Act, 1862,' and it shall be lawful for the Council, the Vestry of the Parish, or the Board of Works for the District in which such building, structure, or erection is situate, to take proceedings against such owner or occupier or builder under the provisions of the said section.

68. *As to Extension of any part of a Building within certain distance from centre of road.*—No person shall, after the passing of this Act, extend any building, structure, or erection upon a site not previously occupied in whole by a building in such manner that any part of the external wall of such extension shall be in any direction at a less distance than 20 ft. from the centre of any roadway used as a carriage-way, or than 10 ft. from the centre of any footway used for foot traffic only (not being an approach road, passage, or way to a single private dwelling-house), without the consent in writing of the Council; and the Council may give their consent subject to such conditions and limitations as the Council may think proper to prescribe. If any person shall, without the consent in writing of the Council, extend or begin to extend any such building, structure, or erection in such manner that any part of the external wall thereof shall be at a distance less than 20 ft. from the centre of any roadway used as a carriage-way, or than 10 ft. from the centre of any footway used for foot traffic, any passage or way, or without conforming to the conditions and limitations which the Council have thought proper to prescribe, he shall be liable to a penalty not exceeding £5, and to a further penalty not exceeding 40s. for every day on which such offence shall continue after the day on which the first penalty is incurred, and to be recovered by summary proceedings.

69. *Laying-out of new Carriage-ways.*—No road, passage, or way which will not directly communicate at both ends with a public carriage-way shall be formed or laid out for the purposes of a public carriage-way without the consent in writing of the Council, and in giving their consent the Council may prescribe all such conditions as they may think fit. Any person forming or laying-out any such road, passage, or way, without the consent in writing of the Council, or without complying with all such conditions as the Council or the Arbitrator may have prescribed, shall for every such offence be liable to a penalty not exceeding 40s., and to a further penalty not exceeding 20s. for every day on which the offence is continued after the day on which the first penalty is incurred. Provided always that in case any person intending to form or lay out any road, passage, or way, as a public carriage-way considers that any of the conditions prescribed by the Council are unreasonable, such person may within fourteen days after the receipt of the order of the Council serve notice of appeal against the same upon the Council, and thereupon such appeal shall stand referred to an arbitrator to be appointed by one of her Majesty's principal Secretaries of State at the request of either party, whose decision shall be final upon the question, and such arbitrator shall have power to make such order as to payment of costs as he may think expedient.

70. *Height of Buildings.*—No building shall be erected after the passing of this Act of a greater height than 70 ft. without the consent in writing of the Council, nor shall the height of any building be at any time subsequently increased so as to exceed the height of 70 ft. without such consent, and in determining the height of any such building the measurement shall be taken from the ground level to the level of the top of the parapet, or where there is no parapet to the level of the top of the external vertical wall. Every person committing any offence under this enactment shall be liable to a penalty of £100, and in case of a continuing offence to a further penalty of £10 for every day during which such offence shall continue after notice from the Council, to be recovered by summary proceedings."

**Rome a Seaport.**—Just as the case has been with Paris and Berlin, a scheme has also been prepared for making Rome a seaport. It has been approved by M. de Lesseps, and is now under the consideration of a committee composed of the Prefect of Rome, a well-known shipowner, a member of the Municipal Council, and two superior military and naval officers. The plan is to construct a canal 80 mètres in width and 10 mètres in depth from the Tiber in the vicinity of the Church of St. Paul to the sea at Castel Fusano, the length of the canal being about eight miles. An American Syndicate has offered to undertake the work, the cost being estimated at 68 million francs.

## SANITARY INSPECTORS: THEIR STATUS AND QUALIFICATIONS.

The two first monthly meetings of the present session of the Association of Public Sanitary Inspectors have been occupied with the discussion of the position of Sanitary Inspectors, especially in view of the question of test examinations for their qualifications.

The inaugural address of the session was delivered, as already mentioned, by Mr. Hugh Alexander, the President of the Council. It was mainly directed to the point that the examinations and certificates of the Sanitary Institute continued to be very prejudicial to the interests of sanitary progress. With a body of gentlemen of the highest eminence, and moved by the best intentions, the examinations continued unsatisfactory, and the certificates given as the result of passing the examinations continued unreliable. The question had so important a bearing not only upon one of the leading objects of the Association, which was to raise the status of the Public Sanitary Inspector, but also upon the public health, that he believed the time had come when further action should be taken in the matter. It would be remembered that in February last the Council had by invitation waited upon the Council of the Sanitary Institute to urge that no candidate should be entered for examination who could not give proof that, by previous occupation and practical experience, he possessed the elements of a qualification which might reasonably justify the examiners in believing that he would be fit to discharge the duties of a Sanitary Inspector. In the absence of practical knowledge such as the Association asked for, no such expectation could be justified, and the consequence was that the granting of certificates by the Institute defeated its own end, the tendency of the present system being not to improve the status and the real efficiency of Sanitary Inspectors, but to the multiplication of inefficient, underpaid, and unauthoritative officers.

In consequence of the representations of the Association, a promise had been given last March that, "as far as practicable," efforts should be made by the Council of the Institute to improve the character of the examination in the direction pointed out by the Public Sanitary Inspectors. Nothing had, however, been done answering to the promise given, and the time had come when they should ask themselves whether they ought to feel content to let the good work so well begun by the Association, with the aid of their great president, Sir E. Chadwick, in educating public opinion on sanitary subjects, suffer through the ministrations of an examining body which seemed incapable of introducing such reforms into its examinations as were necessary to prevent its being a pernicious in place of a salutary influence in sanitation. In a letter to the *Times*, an eminent member of the Institute itself, Dr. C. H. Allfrey, had stated perfectly the leading qualifications required, in suggesting that the Sanitary Institute, in virtue of its new charter, should educate for as well as grant a qualifying diploma. He said:—

"The Sanitary Surveyor should be well versed in all the technical and practical details of sanitary engineering and construction, as well as in their theory. He should possess a sound knowledge of physical laws and of applied chemistry. He should be competent to test practically the soundness of drains, connexions, &c., and should not be above such work. At the same time, he should be of such social standing as to be above suspicion of being liable to yield to undue influence, or to be a party to jobbery of any sort. It will be a happy day for ratepayers when public bodies awake to the sense of the fact that the judicious investment of income in productive 'brains,' by giving liberal salaries to competent surveyors, pays better by the improvement in the public health, and costs less than an enormous expenditure of borrowed capital sunk in unremunerative 'bricks and mortar.'"

The reply of the Registrar of the Institute that they had done what they could, and citing the establishment of courses of lectures as sufficient evidence of this, neither satisfied the public, that Association, nor even the Council of the Institute, for Dr. Dudfield, Mr. Cassal, and Mr. W. R. E. Coles were as little satisfied as Dr. Allfrey, who had, all or some of them, felt compelled to retire from the Council because they found all their efforts to reform its policy met by do-nothing silence. The "Report of the Royal Commission on the Housing of the Working Classes" had in vain recommended the appointment in all cases of persons practically acquainted with building construction to the position of Sanitary Inspector. This recommendation, together with the opinion of the most eminent experts and the greatest practical authorities, had been disregarded and overborne. Men like Dr. Verdon (Medical Officer of Health of the great Parish of Lambeth) had in vain pointed out the acquirements which in the present day were

demanded as absolutely necessary for the office, for the Institute continued to make it easy for unsuccessful schoolmasters, and even railway porters without pretension to the possession of practical knowledge, to obtain the diploma of the Sanitary Institute. Dr. Verdon pointed out in his last report that the qualifications formerly regarded as sufficient were no longer sufficient qualifications for the aspirant for the position of Sanitary Inspector. He said:—

"Builders, plumbers, and the heterogeneous body of workmen engaged in connexion with sanitary work are not long in estimating at its proper worth the practical ability of the man whose instructions it is their duty to follow; nor are they slow in finding means to evade the supervision and directions of a chief whose opinions they have learned to despise. Although perhaps not deeply versed in sanitary matters, the ratepayers and the workmen alike look for the presence among them of a man who, having a practical knowledge of his profession, can speak with authority."

The paper ended by enunciating several conclusions, the chief of which were that the influence of the Sanitary Institute tended not to improve, but to retard the improvement of the status of the Sanitary Inspector, to stultify sanitation and retard the development of sanitary science by the facility it gave for obtaining certificates by persons not possessing the necessary qualifications for inspectors, local authorities being thereby misled into appointing inefficient men at inadequate salaries because they were possessed of the Institute's certificate, a certificate which could be obtained by three months' cramming by persons having no practical qualifications whatever.

Mr. Poulson, Mr. Green, and other members, in the discussion which followed, deprecated the continuous attacks made upon the Institute, which had done much to advance sanitary science,—but the Chairman's views were endorsed by a majority of the speakers, and, after a vote of thanks had been accorded, a resolution on the subject was put to the vote, and carried on the proposition of Mr. Woonton (St. George's-in-the-East), seconded by Mr. Fairchild.

The resolution expressed regret that in the examinations of the Sanitary Institute for certificates as Sanitary Inspectors, there was not demanded a basis of practical and theoretical acquaintance with building construction as recommended by "The Royal Commission on the Housing of the Working Classes," and deprecating the examinations as tending not to promote the interests of the public health and not to improve the status of Sanitary Inspectors, but rather to the production of a body of underpaid, inefficient, and weak officers.

An amendment proposing the adjournment of the discussion was lost, and the resolution, on being subsequently put, was carried by a small majority.

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At the last meeting of the Association, which was held, by permission of the Carpenters' Company, at Carpenters'-hall, London-wall, on Saturday last, a paper of much interest and of great importance at the present moment was presented by Mr. Edward C. Robins, F.R.I.B.A., &c., who, to many other qualifications to take part as an authority in the course of the polemic between the Association and the Sanitary Institute, adds those of a founder of the Association of Public Sanitary Inspectors, a member of the Board of Examiners of the R.I.B.A., and a trusted adviser of the Sanitary Institute. The title of Mr. Robins's paper, "Reasons for the adopting of a uniform title of Sanitary Inspector and suitable test examinations," was but little suggestive of its contents, which dealt in the earlier portions with the radical change which the successive steps of progress realised by sanitary science during the last thirty years have effected in the duties and the position of sanitary officers, whether known as Public Sanitary Inspectors, Inspectors of Nuisances, Building Inspectors, or by other titles. The latter portions of the paper, besides dealing with the subject of test-examinations within the Association, goes into its relations with the Sanitary Institute, and its possible relations with the Royal Institute of British Architects and its members, and with members of the medical profession. In many previous addresses and papers the lecturer had evinced not only his complete grasp of all the questions involved, but his interest in and consideration for the Association, and he appealed, probably not in vain, to some of these efforts before administering to the Association, as he does near the end of his paper, what may be regarded as a benevolent reproof of that which is termed "a hasty judgment, based on insufficient and incorrect data." As early as 1852 the lecturer recognised that eventually the Inspector of Nuisances would have much higher duties to perform than those contemplated by the legislation of that period, and that he would have to cultivate more and more "a better practical and theoretical acquaintance with sanitary science generally." The earlier Sanitary Acts, down to the settlement made by that of Lord Llanover, passed in 1855, only contemplated duties of a simple character, "having relation chiefly to surface cleanliness and the removal of refuse,"—duties which an intelligent policeman might be expected to be capable of having properly carried out. "But," said the lecturer, "we have now come to know that the greatest sanitary evils are not necessarily those which lie on the surface, but, on the contrary, are those which are hidden from view; we have come to know that decomposition of material substances in the open air, though bad enough, is infinitely more deleterious where confined to drains and sewers which become elongated cesspools through inefficient laying or faulty construction; that the concentration and pressure of foul atmosphere in pipes laid on to the houses of the inhabitants who have no other outfall for waste waters and for solid excreta is a danger to health which is only to be averted by special appliances, which were not thought of at the time the office of inspector was established. For a long time shallow water-traps were considered all-sufficient protectors, and the syphoning of such traps by the use of the apparatus, or the evaporation of the water itself, was not considered or provided for. The ventilation of soil-pipes was a thing unknown, and the introduction of inlets for fresh air, and outlets for foul air, were considered refinements rather than necessities of the system of water carriage in house drainage. The direct laying of pipes from man-hole to man-hole, and the embedding in concrete of pipes under houses, and the separation of the waste, and soil, and water drainage, and their separate ventilation, were things undreamt of in those days. The separation of w.c. and drinking-water cistern services was not even thought a desirable thing, and the cistern waste was directly connected with the soil drains, and thus the delivery of pure water was a problem left unsolved and uncared-for. The plan of testing horizontal and vertical pipes, when completed, as to their impermeability by air or water, was not formulated and was not practised, and there were no Sanitary Protection Associations with staffs of resident and consulting engineers and surveyors; and ventilation generally was, comparatively speaking, ignored."

Education of the right sort, said Mr. Robins, is what is now needed most in every branch of intelligent inquiry. That is to say, a thorough practical and theoretical acquaintance with all that relates to the special duties undertaken. "Less than best," he adds, tersely, "comes short of modern requirements."

Coming to the points at issue between the Association and the Sanitary Institute, the lecturer declared that in him the Association had an advocate in the Institute, his mind having been exercised, if not biassed, in the direction of its views, but he warned the Association that it seemed "to have become intolerant, as well as impatient" in not allowing for the differences of opinion which, naturally enough, existed in the minds of the members of other bodies as to what constituted the proper qualifications of candidates for examination. The suggestion was made that the Association should, itself, institute a test examination of fitness for exercising the duties of the office of sanitary inspector, and should itself draw the line between competent and incompetent men. Following the present practice of the Royal Institute of British Architects, the lecturer asked "Why should you not say that no full members shall have had less than two years' official experience, having previously passed the Sanitary Institute's final examination, or been at least seven years a recognised and efficient sanitary inspector? Why not say that no associate member shall be henceforth admitted to your Association who has not passed the preliminary examination at the Sanitary Institute? And then, when you next make your representation to that body, show your willingness so to rehabilitate your own order that it may embrace the application of the proposed amended system of examinations."

Admitting that there was much to be said in favour of the contention of the Association, that "no man who had not had some experience of and knowledge of the building trades should be admitted to the privilege of examination for the office of sanitary inspector," he still maintained that that was very debateable ground, and he warned the Association that it was unfair to the 385 gentlemen who had passed the Institute's examinations, and that it would do no good to attack the Institute, to denounce its claims to the confidence of the public, or to hold it up to contempt by passing condemnatory resolutions, deprecatory of its examinations as "not tending to promote the interests of the public health nor to improve the status of the inspectors." Mr. Robins declared himself in entire sympathy with the appeal made by the Chairman of the Council of the Association (Mr. Alexander) in his paper read at Hastings on "The Status of Sanitary Inspectors," which he considered a very able paper, but he pointed out the difficulty, — one which the Institute had done its best to meet,—of deciding upon the nature of a test examination for sanitary inspectors, so long as their salaries ranged from 10*l.* a year to 300*l.* In conclusion, the lecturer said he thought that the Association should accept the Institute's Examination for Inspectors for the 165 offices where the salary is below 150*l.* a year, while the sixty officers with salaries above 150*l.* should pass the examination for "Building Surveyors" of the Royal Institute of British Architects, to which Institute the Association was recommended to appeal to get a definition of their position; and for forwarding an application of this nature, the lecturer offered his willing services.

In an addendum to his paper, Mr. Robins admitted, after reading a series of printed reports made by Mr. Alexander to the Medical Officer of his district (Shoreditch), that it was essential for London inspectors, at all events, to possess the qualifications that an architect would require in a clerk of works, or that a builder would require in a foreman. In all probability, he said, the Sanitary Institute would amend the present examination to meet the requirements of the day, and might require from candidates some practical knowledge, and give evidence of earnestness by their constancy of attendance upon the various means provided for his help in the study of sanitary science in its application to the needs of practical life.

A discussion, which it was soon evident would have to be adjourned, was then commenced by the chairman, Mr. Alexander, who pointed out that it was precisely because an inspector whose services might be valued at 30s. a week could not be expected to know much about the "hidden causes of disease" that the Association demanded the appointment of those only who possessed a knowledge of building construction. The Association had never denied the value of the examinations of the Sanitary Institute, so far as they went; but they strongly protested against the use made of the pass, which was advertised in such a way as to mislead persons and to induce them to accept as competent sanitary inspectors men who had none of the essential qualifications for the proper discharge of the duties of the office. Nobody would deny the great influence of an Institute, which had amongst its leading members such men as Sir Douglas Galton, Dr. Richardson, and Mr. Robinson; but he did not think that a sufficient reason why they (the members of that Association) should be tongue-tied.

A vote of thanks, on the proposal of Mr. Hearne, seconded by Mr. Woonton, was accorded to Mr. Robins, and expressions of opinion on both sides of the main question were offered by Messrs. Dee, Poulson, Perry, and Green, and the discussion was adjourned to the 21st inst., when Mr. Robins promised to again attend.

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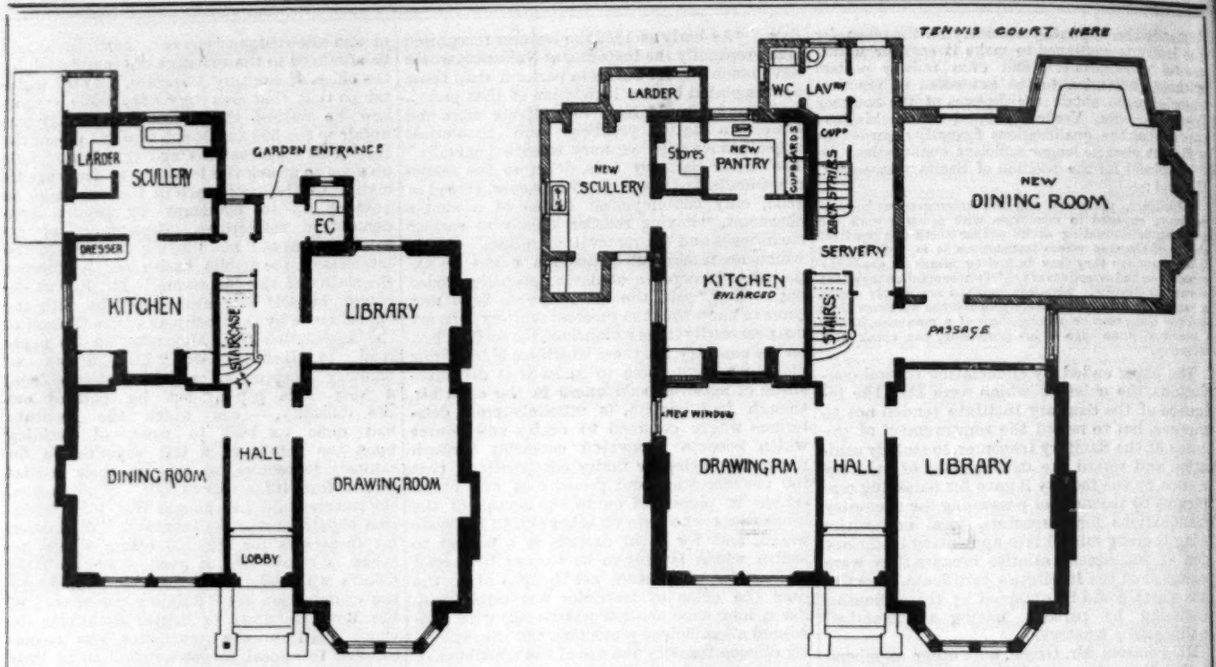
**The Projected Channel Bridge.** — A Reuter's telegram from Paris, dated Dec. 5, and appearing in the *Daily News* of the 6th inst., says:—"One of the directors of the Channel Bridge Company yesterday visited the Minister of the Interior, to whom he officially proposed the scheme, at the same time submitting the project drawn up by the engineers, MM. Schneider and Hersent, Sir John Fowler, and Mr. Benjamin Baker. It appears that in order to remove the objections brought forward against this bridge by the shipping interests in England, it is proposed that a sort of harbour shall be constructed between the two banks existing in the middle of the Channel, and over which the bridge will pass."




*House, "The Limes," near Willesden.—Mr. Sydney Vacher, Architect.*

## Illustrations.

### THE CENTRAL LANTERN, CHÂTEAU DE CHAMBORD.

THE Château de Chambord was erected by King Francis I., on his return from his Spanish captivity in the year 1526, in the curious style which is now called after him; a style in which Classic detail is wedded, as in the Elizabethan, to Mediæval grouping, proportion, and features, but is, nevertheless, treated with a delicate good taste and refinement to which the English style cannot lay claim. This lantern is the central feature of a chaos of high roofs, chimneys, and dormers, above which it does not rise sufficiently high for satisfactory grouping. It encloses a spiral staircase of great elegance, but much too small for its important position in the building.

### GORTON PUBLIC BATHS.

THIS design was submitted in a recent competition, an attempt being made to express outwardly, as far as possible, the internal arrangement. The central block on the ground-floor level is utilised for spacious first and second-class entrances, the check-taker being so placed as to serve for both; the lobbies immediately open into small waiting-rooms, from which a corridor leads right and left to the private bath-rooms in the wings of the main front; these portions are open to the roof, and louvred for the purpose of securing ample ventilation; a small staircase in the rear of this block provides access on the first-floor to a committee-room with retiring-room attached, and on the half-landing to a small gallery to the first-class swimming-bath.

The swimming-baths—first and second class—are planned side by side at right angles to the main front. The buttresses are divisions of solid brickwork between every fourth dressing-box to take the large trusses of the main roof; the boxes themselves being kept low, with a flat over, so that the piers externally may be brought into bold relief; whilst arches are thrown from pier to pier to take the inner wall. Heating and drying-rooms were placed in the basement, with a distinct entrance from the street level. The architects are Messrs. Mitchell & Butler; the view is taken from a drawing hung this year at the Royal Academy.

### PORCH, ST. PETER'S CHURCH, WALPOLE.

IN Domesday Book mention is made of the parish of Walpole. Its name is derived from the great wall or sea bank raised to defend it, and from a pool of deep water near to that wall.

The porch is one of the finest in the county, although there is, I believe, a very good one at Salle Church. The arms on the front are those of the Danver and Goddard families, quarterly with Goddard's crest. These were probably the chief benefactors to the building of the church.

The bosses to the vaulting are in a good state of preservation, and worth a careful study. The old oak doors are very beautiful, but were equalled, if not excelled, by the door at the west end. Unfortunately, this is now much mutilated.

The room over was formerly used for the village school, and this probably accounts for the modern doorway which leads direct into the porch.

The church is a very lofty and spacious one, consisting of nave, north and south aisles, and chancel. The stairs to the rood-loft are intact, but only the lower portion of the screen remains, on which there are some very good paintings.

The chancel is raised considerably above the nave. This is caused by a beautifully-vaulted passage which passes beneath.

Blomefield, in his "History of Norfolk," says:—"The ascent to the communion-table consists of many steps. Under it is an arch, which will contain many horses for the use of those parishioners who are obliged by the badness and length of the ways to come on horseback to church."

Another reason assigned is that there had always been a public footpath here, and to avoid blocking it this passage-way was made.

According to the same author, the windows of the church were filled with stained glass. There are now only a few fragments left in windows in the north aisle. On the wall of the south aisle, over the doorway, traces of a beautiful fresco, probably St. Catherine, can be seen.

ALBERT W. CLEAVER.

### ALTERATIONS TO "THE LIMES," DONNINGTON-LANE, WILLESDEN.

SKETCH OF DINING-ROOM (INTERIOR).

THIS house, which is of the ordinary speculative builder plan, has just been bought, and is being re-arranged by Mr. I. C. Tennant, builder, of Willesden Green, under the superintendence of Mr. Sydney Vacher, architect.

The plans show the extent of the alterations, which also comprise the entire re-arrangement and relaying of the drains.

### SIR GEORGE MONOUX'S SCHOOL, WALTHAMSTOW

THE illustration shows the design accepted, in competition, by the Governors of the Sir George Monoux's Charity. The school-building is designed to accommodate for the present 240 scholars, and is divided into six class-rooms of equal size; the three class-rooms on the east side of the building can be converted into one large hall by means of revolving shutters.

The plan is so designed that an extension can easily be made to accommodate a further 120 pupils by means of three extra class-rooms.

The elevations are of stock brick with a Staffordshire blue brick plinth, Leicester red quoins, &c., and red Mansfield stone-sills, coping, &c. The roofs are to be covered with green slates, the hall is paved with tiles, and the corridors with Wilkinson's granolithic concrete.

The building is to front Marsh-street, Walthamstow, and adjoins the public recreation-ground.

The contract price is 2,895*l.*, and the builders are Messrs. Green & Lea, of Hackney and Walthamstow. The joint architects are W. Jacomb Gibbon and J. W. Stanley Burmester. Certain modifications had to be made in the plan to suit the requirements of the Charity Commissioners, consequently the plan does not quite correspond with the elevation published.

### OFFICES, WOOD-STREET, NORTHAMPTON.

THESE offices are the latest addition to the large and increasing bookbinding and account-book manufactory (which, altogether, covers between 14,000 and 15,000 square feet of ground) of Messrs. Birdsall & Son.

In the *Builder* of January 27, 1883, plans of an addition to this factory were published, specially arranged with a view to obtaining the best possible light for the various processes through which a book has to pass from its collating and stitching, through its "forwarding," to the "finishing" which, in high-class work, is of a most delicate and artistic nature.

The addition made last year has frontages to Wood-street and Union-street of 40 ft. and 80 ft. respectively, the former being the principal entrance front.

On the ground-floor there are binding and stationary show-rooms left and right of the entrance, principals', cashier's, and clerks' offices, whilst the designers' desks are arranged under the windows on the north side. At the extreme end is the workmen's entrance, and adjacent to it a large receiving and packing-room with lift. A fireproof room adjoins the principals' office for the better security of valuable books and documents entrusted to their care. A staircase has been placed in the centre of the new block communicating with the basement and two upper floors, and a second staircase for the workmen in the packing-room.

The basement and top story are almost

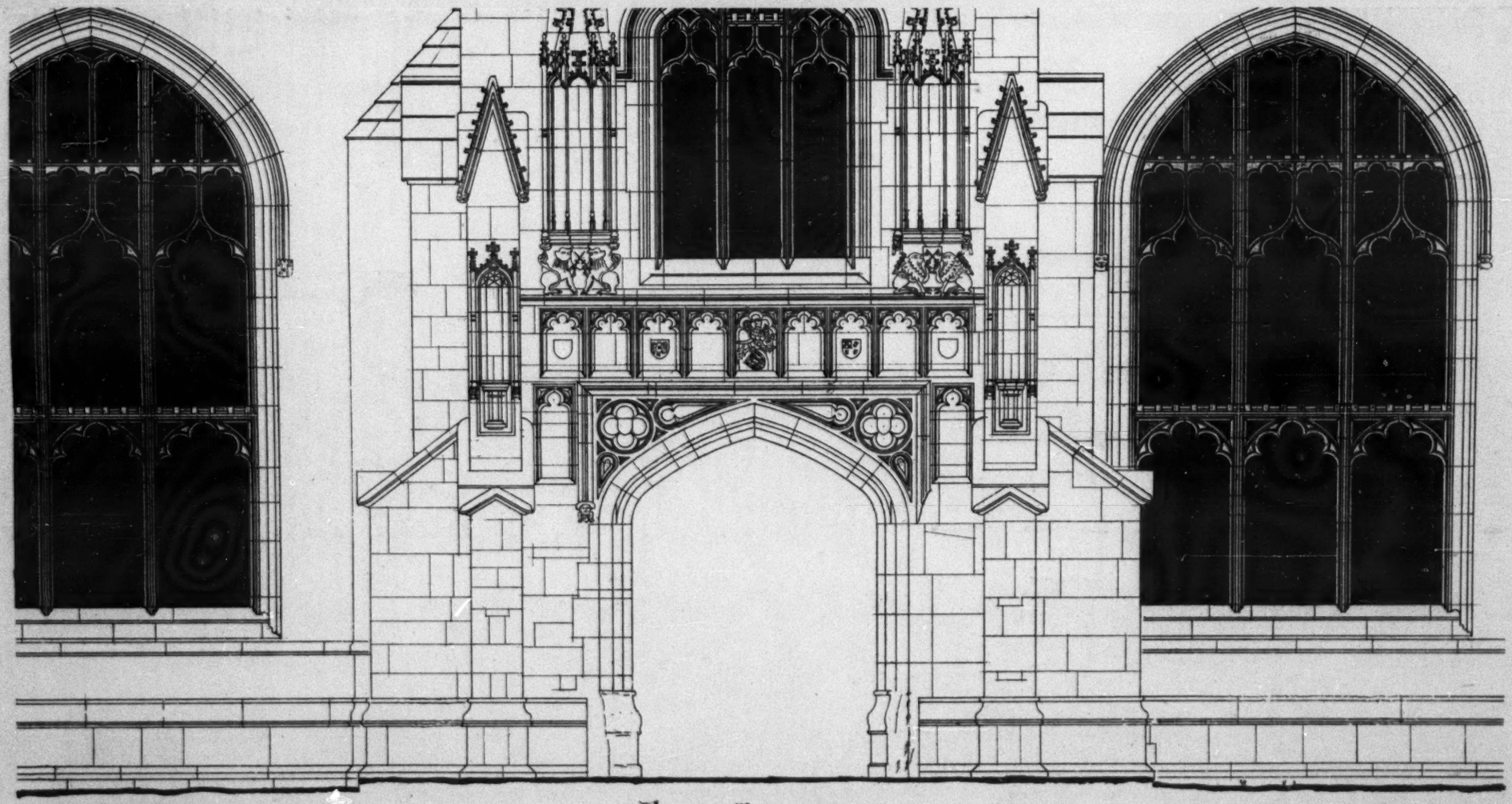
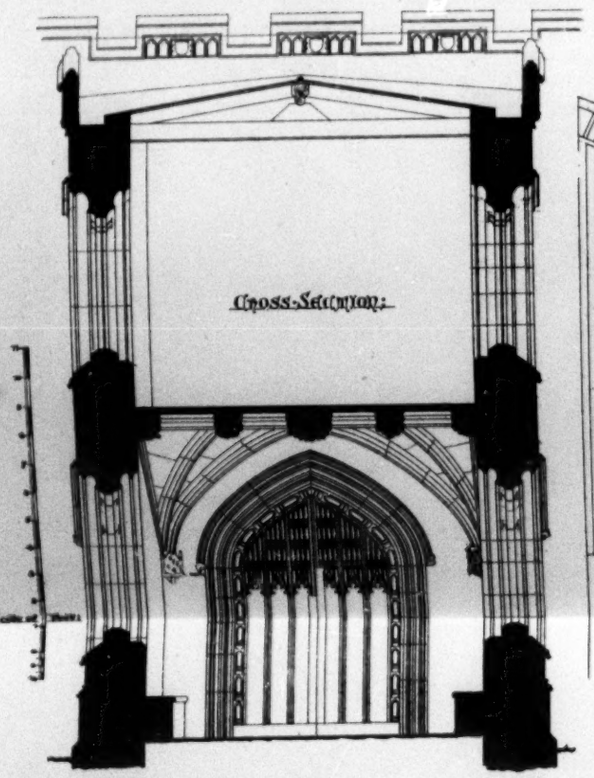
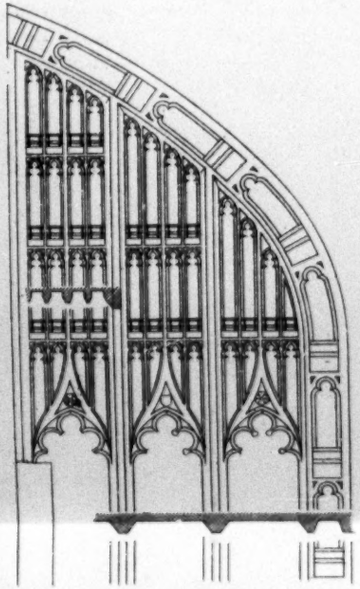
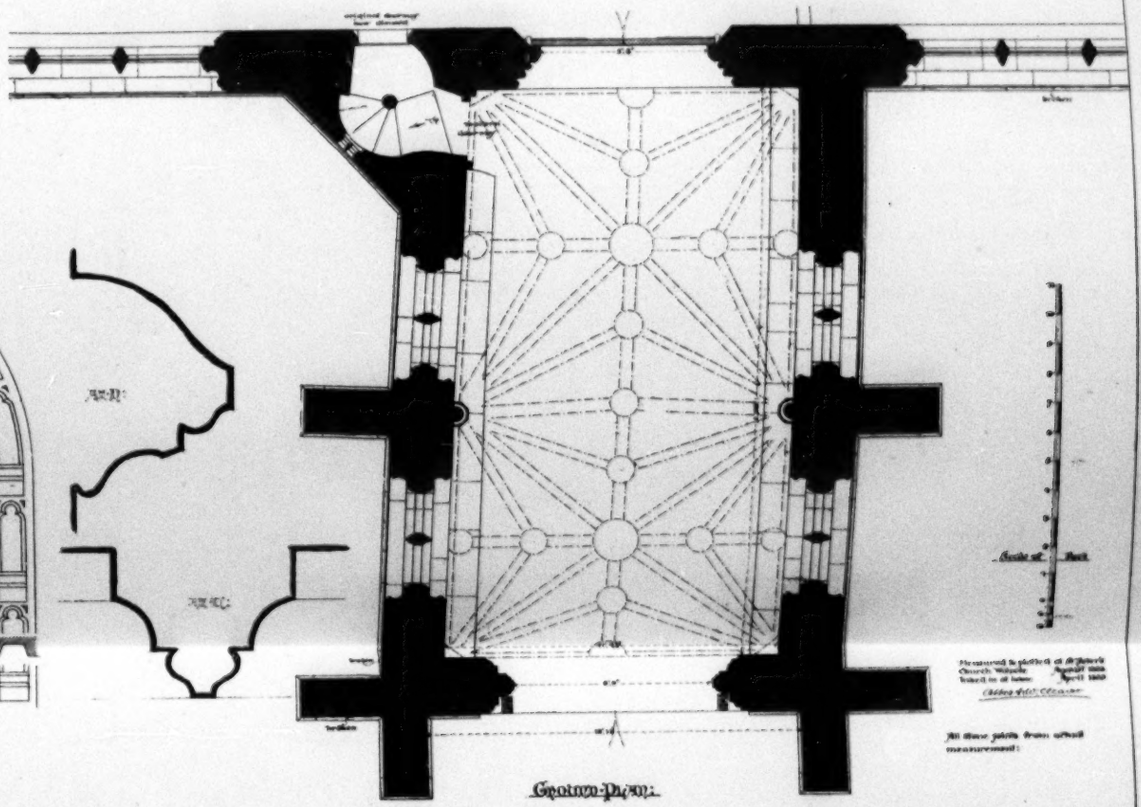


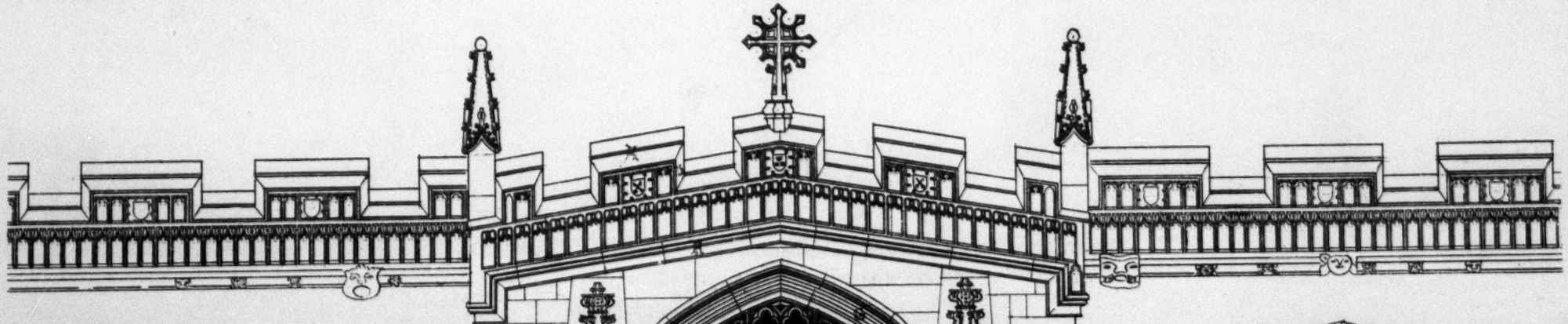

PHOTO-LITHO. SPRAGUE & CO., 28, MARTINS LANE, CANNON ST., LONDON, E.C.

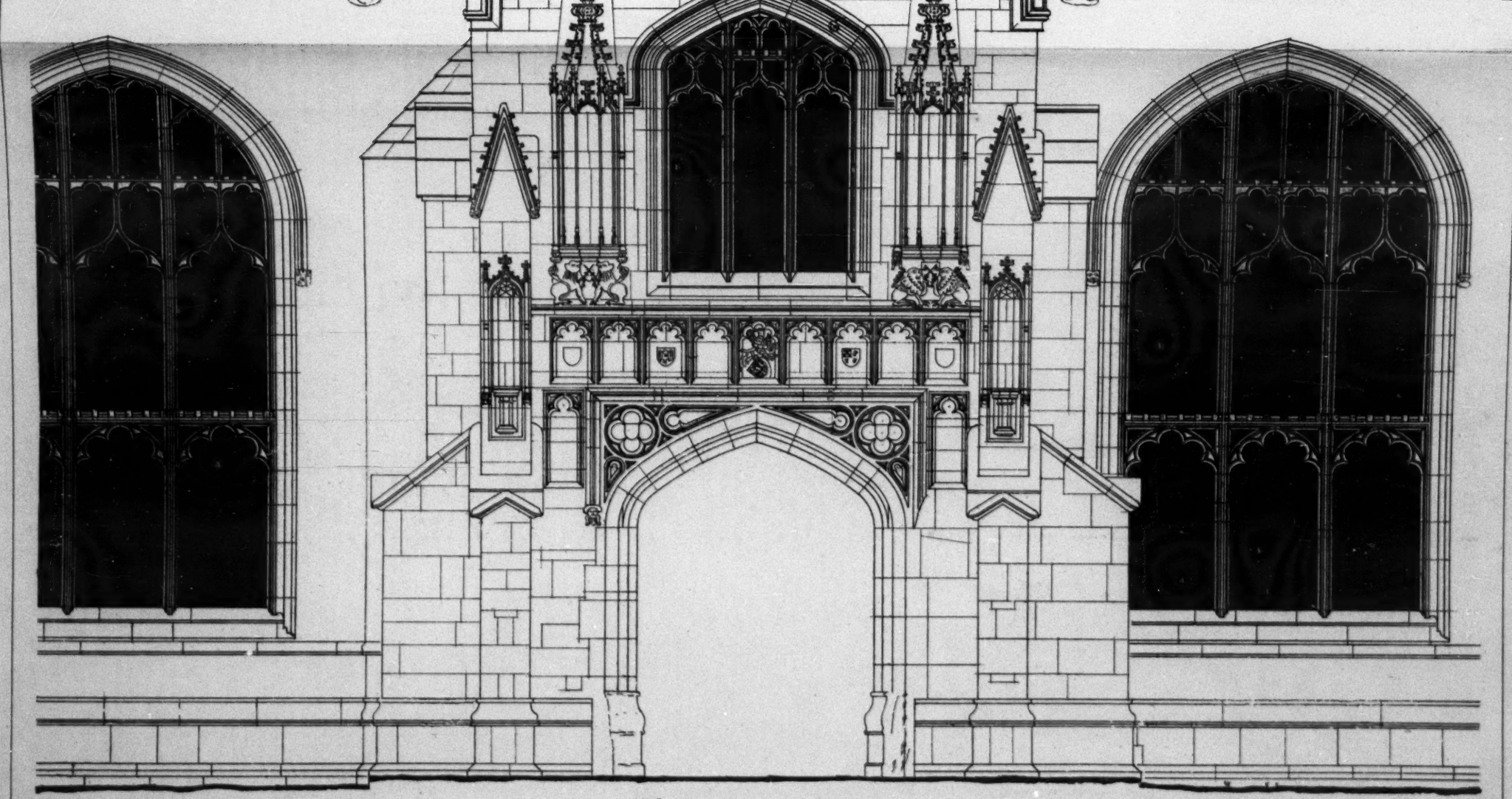
PORCH, ST. PETER'S, WALPOLE, NORFOLK.—Measured and Drawn by Mr. A. W. Cleaver.


Cross-Section:


Details of Door:


Ground Plan:



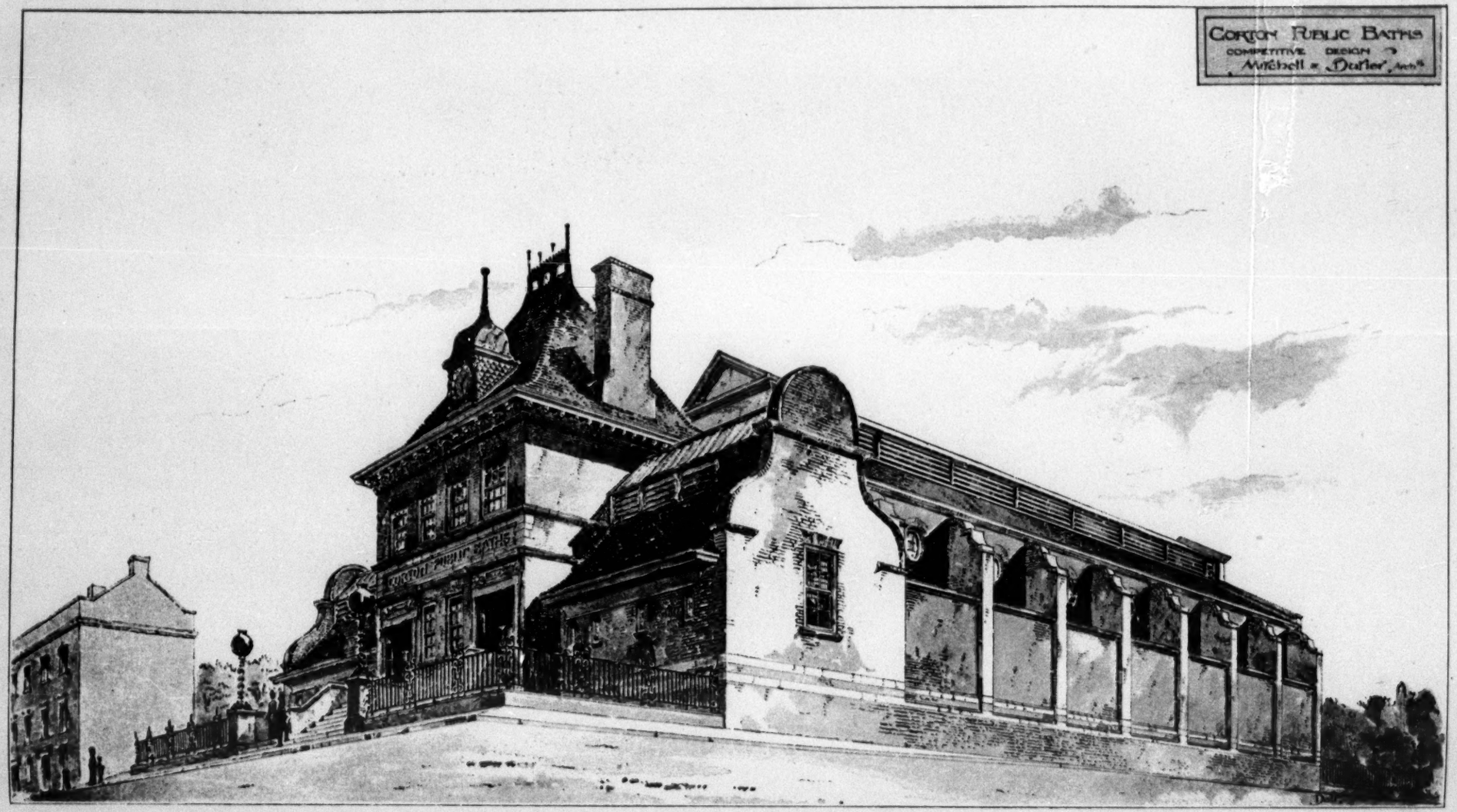


Front Elevation.

Scale of Feet.

PHOTO-LITHO. SPRAGUE & Co. 329, MARTINS LANE, CANNON ST. LONDON, E.C.

PORCH, ST. PETER'S, WALPOLE, NORFOLK.—Measured and Drawn by Mr. A. W. Cleaver.

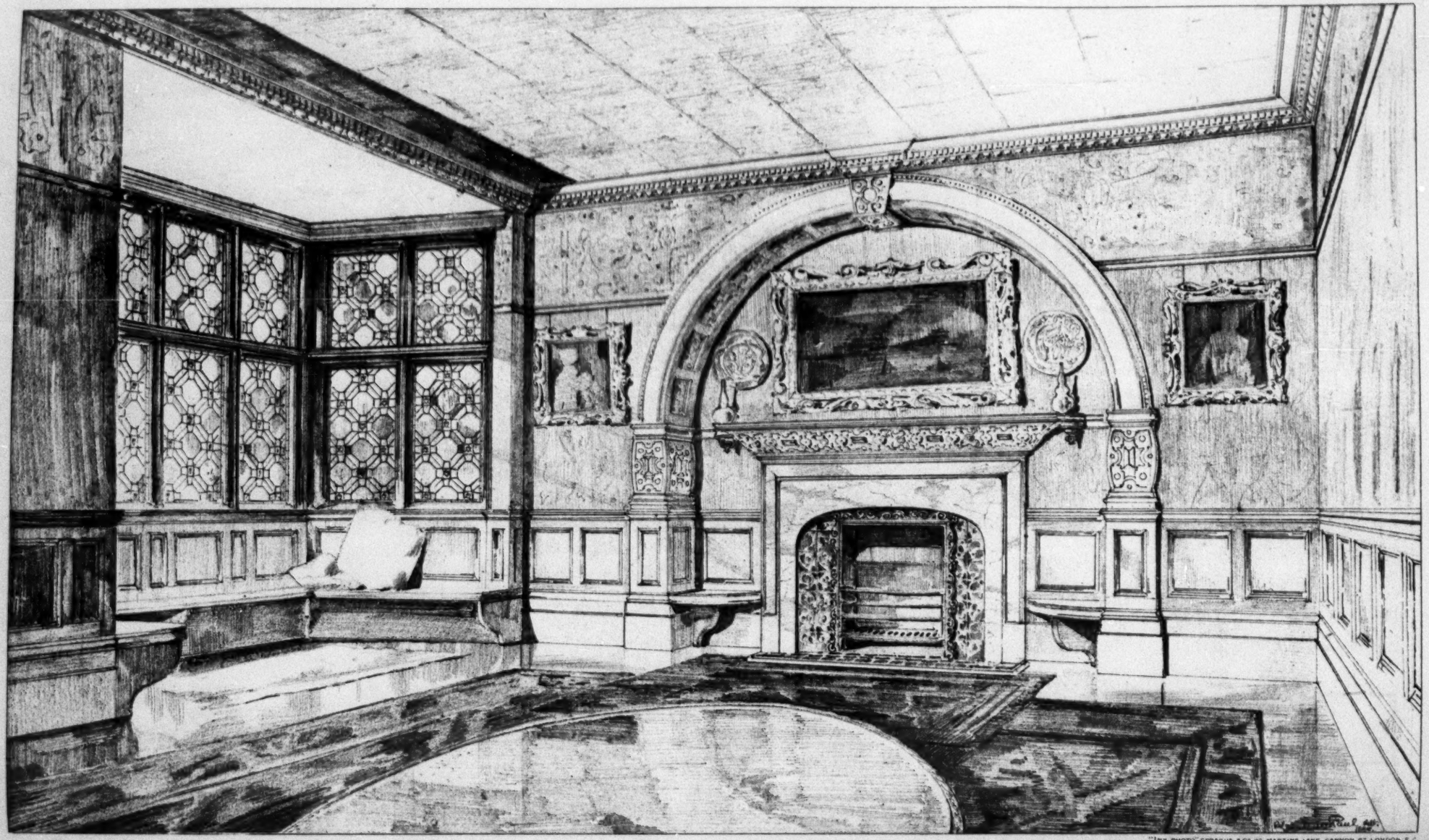



The Phototype Co., 203, Strand, London.

# Imperial Mansions
## Oxford Street W.

Messrs. Martin & Purchase
Architects
Mansion House Chambers E.C.

PHOTO-LITHO SPRAGUE & Co 82 MARTINS LANE CANNON ST LONDON E.C.

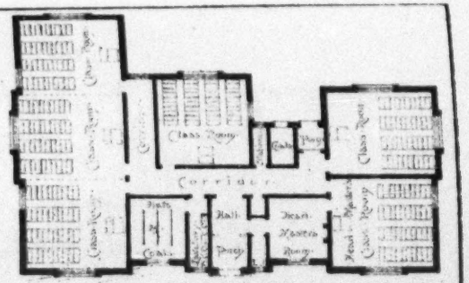


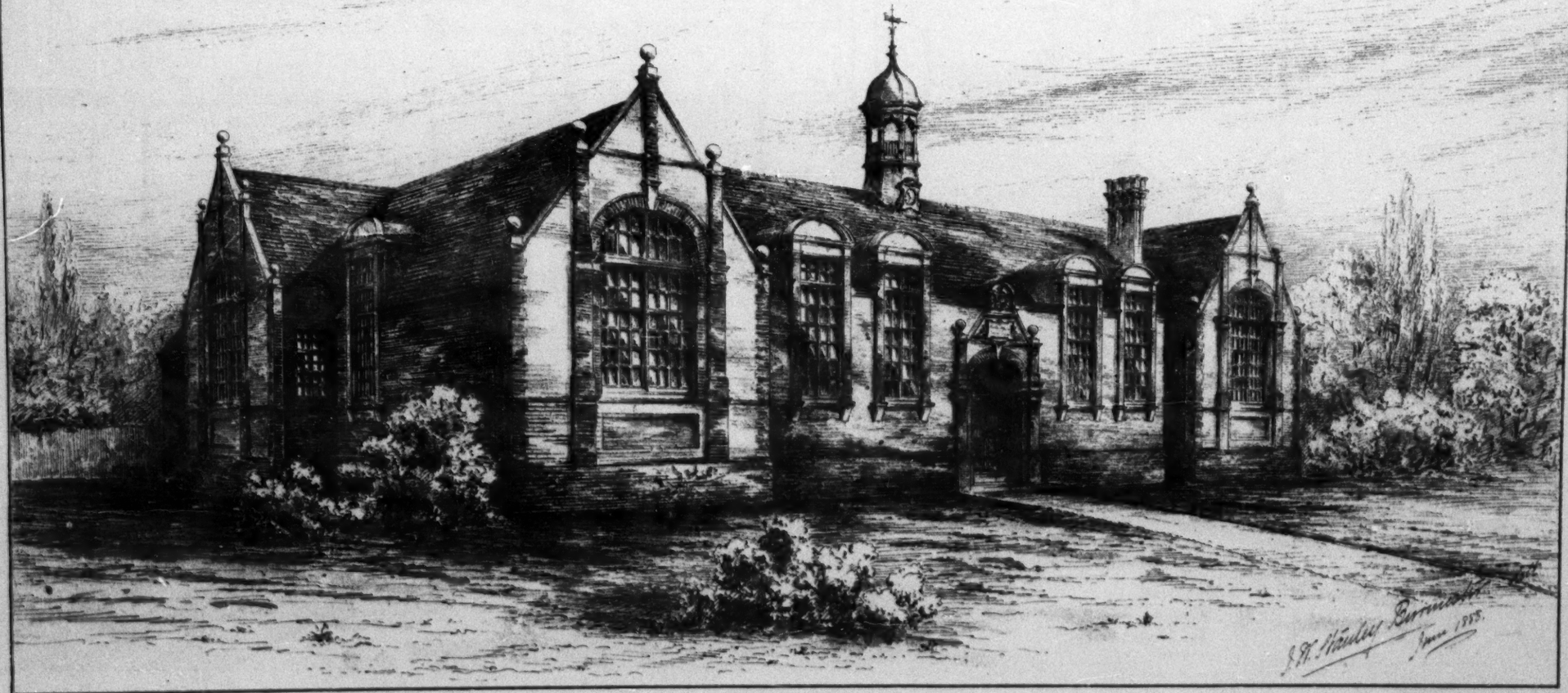
"Ideal" Photo," Sprague & Co., 22, Martins Lane, Cannon St., London, E.C.

DINING ROOM, "THE LIMES," DONNINGTON LANE, WILLESDEN.—Mr. Sydney Vacher, A.R.I.B.A., Architect.

# Sir George Monoux's Grammar School
## Walthamstow

W. Jacomb Gibbon
J. W. S. Birmingham } Architects



J. W. Gibbon Birmingham June 1889.

"INK-PHOTO," SPRAGUE & CO., 62, MARTIN'S LANE, CANNON ST., LONDON, E.C.

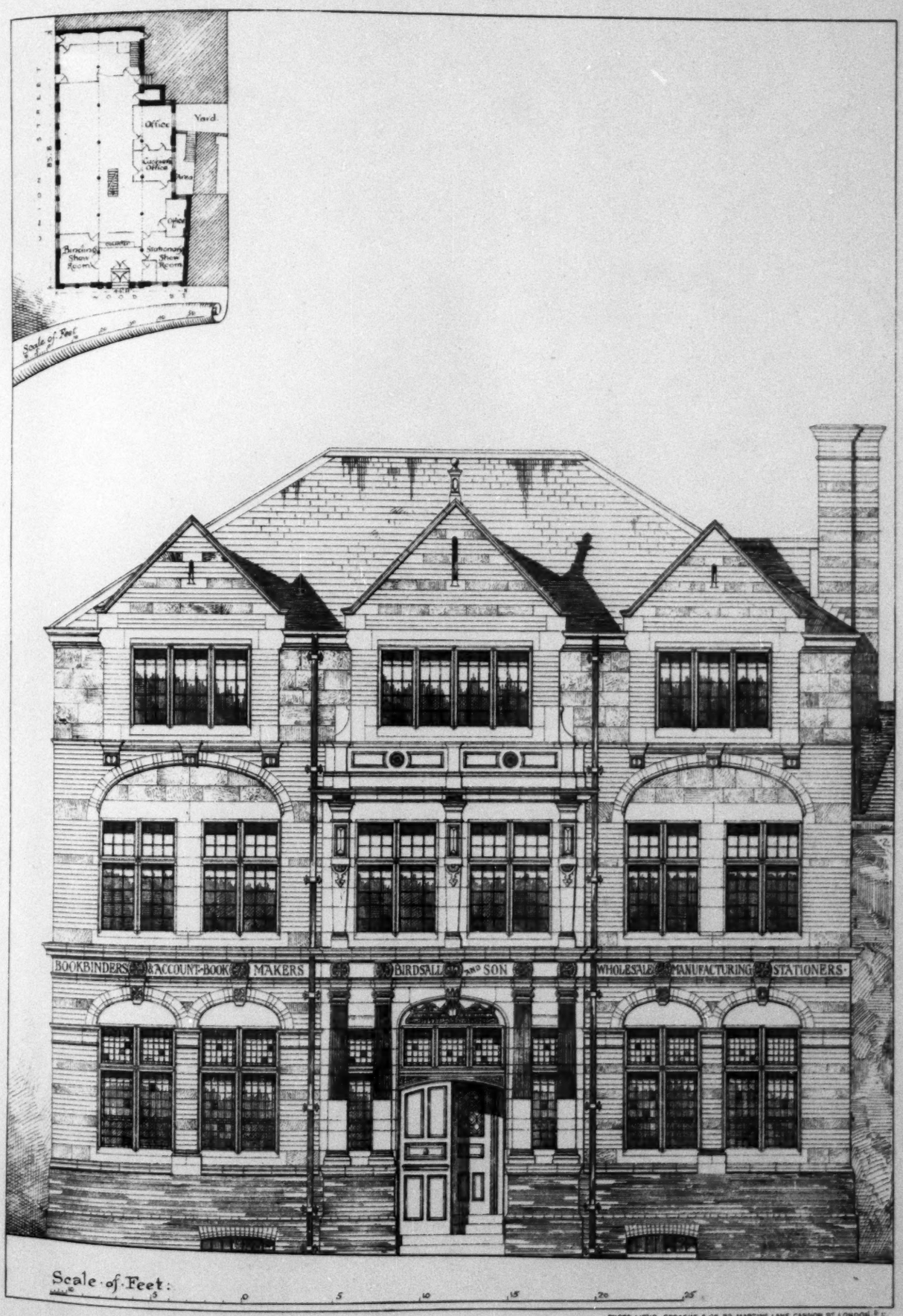
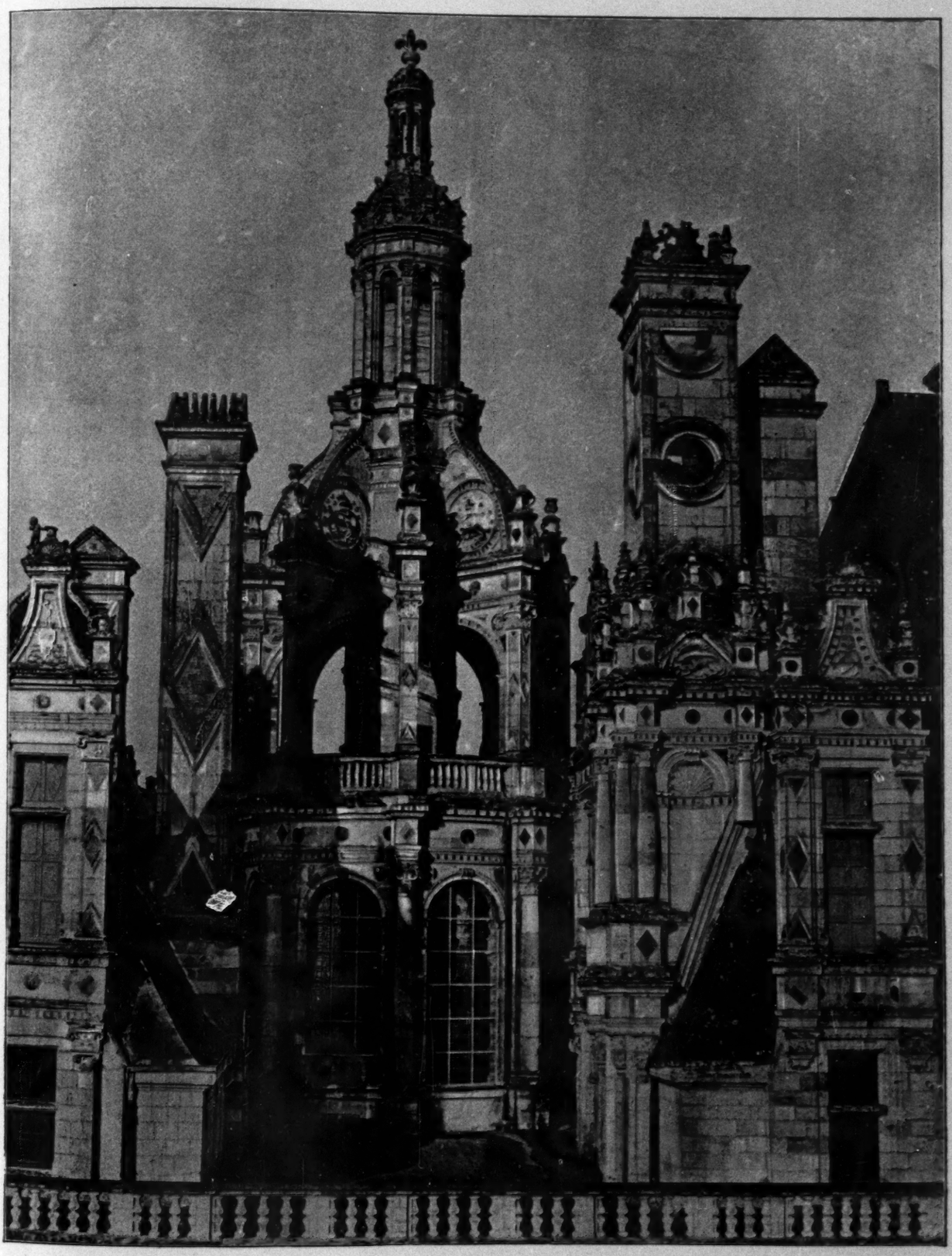



PHOTO-LITHO. SPRAGUE & Co. 92, MARTINS LANE, CANNON ST., LONDON, E.C.

BUSINESS PREMISES, NORTHAMPTON.—Mr. T. Garratt, A.R.I.B.A., and Mr. E. Law, F.R.I.B.A., Joint Architects.



The Phototype Co., 26, Strand, London.

THE LANTERN: CHÂTEAU DE CHAMBORD.

IN LOVING MEMORY OF
GEORGE PELLEW D D 3RD SON OF ADMIRAL VISCOUNT EXMOUTH
BORN APRIL 6 1793 DIED OCTOBER 13 1866 37 YEARS DEAN OF THIS CATHEDRAL
FOR THE SERVICE OF WHICH HE ZEALOUSLY LABOURED
THIS TABLET IS DEDICATED BY HIS CHILDREN A D 1889

*Memorial Brass to the Late Dean Pellew, Norwich Cathedral.*

entirely appropriated for warehousing purposes, and the first-floor for additional factory work.

The general design and treatment (more especially of the detail) is based upon the character of work of the buildings of the seventeenth century, found in and about the town and county of Northampton.

An attempt has been made to emphasise the chief features of the entrance front by the colour of the various materials used, the plinth being of strawberry Luton bricks, the central portion and the principal cornice and dressings to arches, &c., of ground Bath stone. The rich brown-coloured local stone (of which the old houses which previously stood upon the site were built) has been freely used in bands and panels, pleasingly harmonising with the general facing of Harlestone red bricks.

The side front is almost entirely of red brick, and the roof covered with Bangor Countess slates.

There was only 50*l.* difference in three out of the four tenders received. The contract, amounting to 2,428*l.*, was signed on Aug. 10, 1888, and the work completed (with the exception of some fittings and painting) before Christmas. The building works out at 3½d. per cubic foot. Mr. J. T. Wingrove, of Northampton, was the contractor, and Messrs. Thomas Garratt, of London, and E. Law, of Northampton, the joint architects.

The original coloured drawing (of which this is a copy in line drawing) was in this year's Academy Exhibition.

## IMPERIAL MANSIONS, OXFORD-STREET, W.

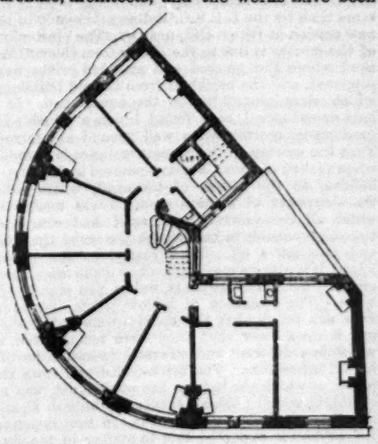
THIS prominent semi-circular building, standing at the corner of Charing Cross-road and High-street, Bloomsbury, and directly facing Tottenham-court-road, is constructed so that the ground-floor and basement could be let as a whole, or be divided up into smaller tenements, which latter course has been adopted.

The chambers over are separated from the shops by a fireproof floor, and approached by a private staircase and hydraulic passenger-lift. The rooms are arranged to let singly, in pairs, or in larger suites.

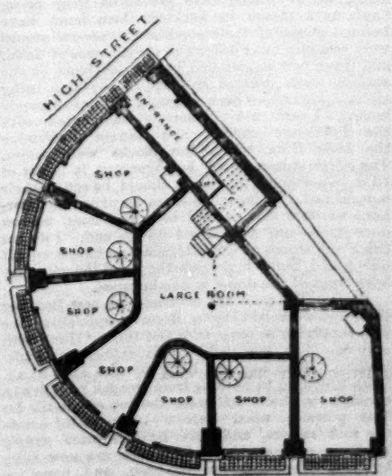
The internal construction is almost entirely of iron, and is carried on stanchions and columns. This was done to save the valuable space which brickwork would have taken up, and also to enable the ground-floor to be let in one large open space if desired, as all the walls on the ground and basement floors, which now form the divisions of the small shops, could at any time be cleared away without interfering with the structure.

The elevation is of red brick and Beer stone, with red granite pilasters to ground-floor. The cost of the building has been about 12,000*l.*

The design was prepared by Messrs. Martin & Purchase, architects, and the works have been



FIRST FLOOR PLAN




GROUND PLAN

*Imperial Mansions, Oxford-street.*

carried out under their superintendence by Messrs. Perry & Co., the well-known contractors.

## MEMORIAL TO THE LATE DEAN PELLEW, NORWICH CATHEDRAL.

THIS memorial is in the form of a "Latten" brass, 5 ft. 4 in. by 3 ft. 6 in., mounted in a 6 in. moulding of Derbyshire fossil marble, and is engraved with a recumbent figure and portrait of the late Dean, within a canopy and border of stiff foliage. In addition to the inscription there are the arms of the Exmouth family and of the Dean and Chapter of the Cathedral. The profile head had to be adapted from a three-quarter face miniature, and, in spite of this difficulty, is said to be a good likeness. The whole was designed and executed by Mr. T. J. Gawthorp, of London.

## THE SOCIETY OF ENGINEERS.

THE thirty-fifth annual general meeting of the Society of Engineers was held on December 9, at the rooms of the Society, 17, Victoria-street, Westminster, S.W. The chair was occupied by Mr. Jonathan R. Baillie, President. The following gentlemen were duly elected, by ballot, as the Council and Officers for the ensuing year, viz.:—As President, Mr. Henry Adams; as Vice-Presidents, Mr. William Newby Colam, Mr. Joseph William Wilson, jun., and Mr. William Andrew Valon; as other Members of Council, Messrs. Chris. Anderson, R. W. Peregrine Birch, James Henry Cunningham, Henry Faija, George A. Goodwin, Thomas Bell Lightfoot, James Wallace Pegg, and William Schönheyder; as Honorary Secretary and Treasurer, Alfred Williams; as Honorary Auditor, Alfred Lass (Messrs. A. Lass & Co.). The proceedings were terminated by a general vote of thanks to the Council and Officers for 1889, which was duly acknowledged by the Chairman.

The annual dinner was given at the Holborn Restaurant on Wednesday evening last. The President, Mr. Jonathan R. Baillie, occupied the chair, and amongst a large company present were Mr. Benjamin Baker (Hon. Member), Captain Bates, Mr. R. Eliott Cooper, Mr. Henry Adams (President-elect), Mr. W. Newby Colam (Vice-President), Messrs. J. H. Cunningham, George A. Goodwin, William A. Valon, and J. W. Wilson, jun. (Members of Council), Mr. Jabez Church, Mr. Charles Gandon, Mr. Perry F. Nursey, Professor Henry Robinson, and Mr. A. T. Walmisley (Past Presidents), Mr. Alfred Williams (Hon. Secretary and Treasurer), and Mr. G. A. Pryce Cuxson (Secretary). The usual loyal and patriotic toasts having been duly honoured,

The Chairman proposed the toast of the evening, "Success to the Society of Engineers." He said that while the objects of the Society were similar to those of the Institution of Civil Engineers, yet, as Mr. Walmisley, President last

year, had said in his address, the Society was not a rival to the Institution. On the contrary, most of the leading members of the Society were members of the Institution, and they all acknowledged the status of that institution. The Society was founded about thirty-five years ago for promoting the study of engineering, which it did by holding meetings for the reading and discussion of papers, and by visits to engineering works in progress. With the toast was coupled the name of Mr. Alfred Williams, the Hon. Secretary and Treasurer, who was spoken of as "the father of the Society."

Mr. Alfred Williams, who was very heartily received, spoke of the good work which had been done and was being done by the Society, and said that it now numbered between 400 and 500 members.

Mr. A. T. Walmisley, in proposing the toast of "The President," said that Mr. Baillie had acquitted himself of the duties of the chair during the past year in a highly commendable manner, and it was a feather in his cap that during his term of office two distinguished engineers had been elected honorary members of the Society,—viz., Lord Armstrong and Mr. Benjamin Baker. As he need not remind the company, one of Mr. Baker's latest works was the Forth Bridge. Mr. Baker was universally respected in the profession, because he was always ready to help on and encourage those who had not attained the same eminence as himself.

The toast having been honoured, the Chairman briefly replied, and proposed "The President-elect," Prof. Henry Adams, who also briefly replied.

Mr. Tamburini proposed the "Vice-Presidents and Council," on whose behalf Mr. W. N. Colam responded.

The Chairman next proposed "The Visitors," coupled with the name of Mr. Benjamin Baker, joint engineer of the Forth Bridge.

Mr. Baker, who was very enthusiastically received, made an interesting speech, in the course of which he referred to the *camaraderie* subsisting between engineers in all parts of the world. With regard to the proposed Channel bridge, in connexion with which his name had been mentioned, he said he was not a promoter of that work in any sense of the word. He had simply had the drawings of it submitted to him by M. Schneider.

In proposing "The Secretary," the Chairman referred in highly eulogistic terms of the services of Mr. Pryce Cuxson, who briefly replied.

## OBITUARY.

*Mr. J. Mechelen Rogers, A.R.I.B.A.*—In the *Times* of Wednesday last we regret to see the announcement of the death, on the 7th inst., at Brighton, of this gentleman, at the age of 57. He held an appointment in the Design Branch (Horse Guards) of the War Office. Both inside and outside the architectural profession he was well-known as a dramatic reader, having given readings at social gatherings of the Architectural Association and before many literary institutions. In particular he was noted for his admirable rendering of Dickens's "Christmas Carol." He was elected an Associate of the Royal Institute of British Architects in 1870.

*Mr. James Duneau Doulton.*—We regret to record the death of Mr. James Duneau Doulton, a member of the well-known firm of Doulton & Co., Lambeth, who died on the 28th ult., at his residence, West Brighton, aged 54. He was the youngest son of the late Mr. John Doulton, the founder of the firm, who died in 1870. The deceased gentleman was a brother of the late Mr. Frederic Doulton, some time M.P. for Lambeth, and of Sir Henry Doulton, the present head of the firm. His work lay more in the office than in the factory, but he had a good practical knowledge of the *technique* of pottery. He was greatly esteemed and respected by all who came in contact with him. He was one of the very first of the local manufacturers to take up the Volunteer movement, in which he took great interest and rendered very effective service as an officer in the 1st Surrey Rifles, retiring a few years ago with the rank of Captain. The funeral took place on the 3rd inst., at the Hove Cemetery, a special train conveying the family mourners, the heads of departments, and about seventy old servants of the firm, some of whom had seen between forty and fifty years' service.

## WOODLAND-ROAD AND SALTERS'-HILL SCHOOLS.

The following is the reply of the Clerk of Works to the Report sent in by the Repairs Officer of the London School Board in regard to Woodland-road and Salters'-hill schools. It may be remembered that we expressed the opinion a fortnight since that the Clerk of Works' statement of his case should have been made public:

"Reply to Mr. Bradfield's Report on Salters'-hill and Woodland-road Schools, dated November 15, 1889.

*Salters'-hill School.*

There is no question that an error in judgment was committed here in building the gable end wall so close to the school drain, though the consequences have been four years in appearing. I admit my share in that error, which any one might easily have fallen into who saw the trenches opened. I acted as I thought best at the time, and, as I believe, with the full sanction of the architect. In all respects the foundations were laid in accordance with drawings supplied.

*Woodland-road School.*

This school, built on heavy clay, is carried on arches, has slight piers between large and lofty windows, and rises to a great height. After *three years'* exposure to stress of weather and wear of school-life, there is no symptom of a settlement anywhere, no arch is crippled, no sill nor head cracked. This is strong presumptive evidence that the materials of which it is constructed are not of an inferior kind, nor the workmanship of an inferior order.

*Brickwork.*—There was not a single yard of burnt ballast or "half-burnt clay" on the ground until the play-grounds were being formed, when the building was nearing completion. None, therefore, could have been used in the making of mortar. The grey Dorking lime and Red Hill sand used for this purpose were supplied by Hall, Potter, & Co., of Croydon. The same sand was being used at the same time by the L.B.S.C. Railway Company in the new station at Gipsy Hill, near by. The pink colour of the mortar is due to the *débris* from the cutting-shed where the gauged and moulded bricks were prepared, and the brickbats from the old buildings, which were ground up in the mortar-pan. In a long experience I have found bricks a valuable ingredient in mortar when well ground and mixed. That the mortar in the present instance is crumbly when picked out with a sharp-pointed tool is due, I believe, to the nature of the sand, which lacks the sharpness of Thames sand. I was unable to watch all the mortar made, as I had charge of two other schools in building at the same time, six and two miles off. With regard to the hollow joints, it is always most difficult to make bricklayers properly fill the cross-joints, unless you stand over them. The presence of hollow joints, however, does not prove that the courses were not flushed up; it does show that they were not grouted, in which is a different and effectual operation for filling all interstices. The brick-coped wall from the joints, of which the mortar has washed out, was an oversight which I cannot excuse, as the wall should have been built up in cement in the first instance. I should have expected this to appear in the final report, to which, however, I am unable to refer.

*Portland Stone.*—This was supplied by Stewards, of Nine Elms, who are large Portland quarry owners. Some of the stones now show imperfections, which should have prevented their being used, as a mason in working them must have become aware of their condition. Several stones were removed after setting in consequence of flaws, and those now condemned bore no evidence on the surface when dressed and set of anything being amiss. Had there been, it could not have escaped notice. I am not personally acquainted with the Portland quarries, and cannot determine the beds from which the blocks were taken. The oölitic stones being homogeneous, it is not of vital importance that they should be set in their natural bed. Indeed, it is often very hard to determine which is the natural bed, and long, narrow door jambs are always set up on end. I do not think any stones at the entrances can have been left undoweled, but it is possible the jar of the gate may have cracked the dowel in one instance.

*Roofs.*—The roofs are covered with best Broseley tiles, and were laid by a Broseley specialist; the firm supplying at once tiles and tiler. 'Hung with only one 1½ in. zinc nail.' This expression is misleading. Tiles are not hung by the nails at all. Plain tiles used to be hung from two oak pegs driven through two holes left near the top of the tile for that purpose, upon narrow laths nailed across the roof rafters, and were held in place simply by their own weight. The tiles are now hung by two nibs cast on the top, and hang on feather boarding. As an additional security against shifting, the old peg-holes are turned to account by nailing the tile through them to the boarding below, but the feather-boarding being very thin, the frequency of the nails, tile after tile, constantly splits it, so that I have found it expedient to use one nail instead of two, and a 1½ in. nail is amply long enough to pass the feather-board. Another advantage is that there is less disturbance in case of a tile wanting renewal. Some people still consider it better not to have any nails at all.

*Lead and Pipes.*—These were supplied by Farmiloes. I am certain that 7 lbs. lead was delivered on the job, and I do not know where else it can have been used than in the gutters. I am, therefore, sceptical as to 6 lbs. being used. It is possible in the schoolkeeper's house the plumber may have cut the lead from the wrong sheet, but the circumstance will doubtless be found in the Final Report, and to have been adjusted accordingly.

The pipes were *invoiced* at the specified weights. When goods are supplied by a firm of known probity I am content to accept their invoice as a guarantee of correctness.

The zinc flat over infants' cloak-room has sagged, and the water does not run wholly off, but it does not lead to any injurious result.

The depth of a pipe below ground must be to some extent a matter of discretion. Any depth over a foot under a tar paving is a security against frost. The 1½ in. pipe from main to stop-cock box is a survival from the days of intermittent supply. For a *constant* supply the water company allows, I believe, only a ¾ in. connexion. The oversight of the tar-boxes in the ground and some of the minor items are due to the impossibility of being in three places at once.

*Glass.*—The glass was supplied by Conolly, and invoiced as 26 oz. Has it been *weighed* or only *gauged?*

*Ceilings.*—The cracked ceilings are, I fear, due to a too close following of the clause in the specification, 'Each coat to be strongly gauged with fine plaster.' (This is now omitted.)

*Schoolkeepers' house.*—The builder left the air-bricks well above the ground level, but the tar-paviors thought fit to raise the level about the house so that one air-brick is rather low. The absence of concrete over the surface of the site is, I apprehend, due to there being none specified.

The plastering (here and generally) was executed by men of repute in the trade—Parker and Cane. Parker did this work. That the setting coat is giving way may result partly from the artificial drying of the work too rapidly, which was resorted to in order to hasten completion.

*Final Report.*—This usually drastic document was sent in on May 20, four months after the school was opened. I received a copy, together with one of a letter to the builders, which accompanied it. I have no copy now, but my memory serves me to feel sure there was nothing of a serious nature to be corrected under that report.

The completion of this building was followed by copious rains, to which succeeded long and severe frosts, which tore out the pointing of the brickwork and split stonework to pieces all round the neighbourhood, rendering a great deal of reinstatement necessary the following spring; and a great deal of the present condition is due to that severe time.

F. Warren, C.W.

## THE LONDON COUNTY COUNCIL.

The usual weekly meeting of the London County Council was held on Tuesday afternoon last in the Council Chamber, Guildhall, Lord Rosebery in the chair.

*Building Applications during the Recess.*—The Building Act Committee's report contained the following paragraph:—

"Your Committee are of opinion that as the Council has resolved to adjourn for four weeks from the 17th inst., and as there will be many applications made during that period under the Metropolis Management and Building Acts, it is desirable for the convenience of the public that a special meeting of the Committee shall be held during the vacation. They accordingly recommend—

'That the Council do, under the provisions of the Local Government Act, 1888, sec. 28 (2), delegate to the Building Act Committee power to hold one meeting during the recess, for the purpose of considering applications made to the Council under the Metropolitan Building and Management Acts, and at such meeting to act on behalf of the Council, and to grant or refuse such applications; provided, however, that the Committee shall only act upon such decisions as shall be unanimously arrived at by the members present, and that all such decisions shall be reported to the Council at its first meeting after the recess.'"

This was agreed to, but the consideration of the "corrected regulations for the guidance of builders and others in making building applications to the Council" was postponed.

*The Sewage Sludge Question.*—The Main Drainage Committee reported as follows:—

"Your Committe have considered the report of Mr. Gordon, urging the provision of two more sludge vessels, and have also considered his question as to whether this is the proper way of dealing with the sludge. He had no doubt that it is the least expensive way of disposing of this residuum. Your Committee, agreeing entirely with the Royal Commissioners' report of 1884, that it is neither necessary nor justifiable

to discharge the sewage of the Metropolis into any part of the Thames from the Nore upwards, are of opinion that any process of precipitation and of separation of effluent and sludge must necessarily be carried on where the late Metropolitan Board have engaged their successors in connexion with an outlay upon works of nearly 800,000*l.* for that purpose. Your Committee are convinced that the probable alternative will be found to be the conveyance of the sewage to the sea upon the Essex shore by some such plan as that sanctioned by Parliament in the Act of 1865. But your Committee observe that their immediate and unavoidable duty is to promote the best and most complete use and employment of the works committed to their charge, which are already in a condition to produce as much sludge as four vessels can remove. They therefore recommend—

'That tenders be obtained for the construction of two sludge vessels upon the model of the older and less costly ship, with certain modifications to be described by the Engineer.'"

The consideration of this report was deferred until the next meeting of the Council.

*The Strand Improvement.*—The Parliamentary Committee, in the first paragraph of their report, said:—"In accordance with the resolutions passed by the Council on the 1st and 29th of October last, we have prepared a Bill to enable the Council to acquire and remove the south side of Holywell-street, and also sufficient land and buildings on the north side of St. Mary-le-Strand Church, and a portion of the enclosure at the west end of the said church, so as to form a practicable roadway with frontage thereto. The Bill, as ordered by the Council on Nov. 5, contains provision that owners of property within a certain area approved by the Committee, and specified in the Bill, shall be required to contribute towards the expense of the improvement in proportion to the enhanced value of their property due to the improvement. It also contains provision for varying the principle on which compensation should be assessed for property taken, and for enacting that no compensation should be paid for compulsory purchase. The provision relating to compensation for compulsory purchase accords with the terms of the resolution of the Council on Nov. 5. We are advised, however, that the retention of this provision, as contained in the last lines of clause 12, will be opposed by the authorities of the House who are responsible for and have the control of private Bill legislation, and that they will require their omission. We are further advised that the withdrawal of the words after the Bill is deposited will be attended with very considerable expense, and that any costs would probably be allowed against the Council, which might have been incurred by parties appearing on the Bill in consequence of the general notice and who might not have full notice of the withdrawal of the clause, and that, to lessen the cost, notice of the withdrawal of the provision would have to be served on every owner, lessee, and occupier named in the book of reference. Under the circumstances, we have no alternative but to recommend—

'That the words at the end of Clause 12, "'Nor shall any additional allowance be made in respect of compulsory purchase of any lands or premises,'" be struck out of the Bill."*

The Bill was taken clause by clause, and upon clause 12, Mr. Harrison, the Chairman of the Parliamentary Committee, stated that the addition of 10 per cent. for compulsory sale had become so much a matter of usage as to be practically equivalent to an unwritten law, and therefore he did not think it would be wise to risk the rejection of the Bill by adhering to the words printed in italics at the end of the clause. After a good deal of discussion, it was agreed to omit the words. The next clause upon which there was any serious disagreement was clause 29, of which the following are the first few paragraphs:—

"And whereas the improvement being effected out of public funds belonging to or charged upon the ratepayers of the County of London will or may increase in value lands or property fronting on or in the neighbourhood of the improvement but not acquired for the purpose thereof, and it is reasonable that provision should be made under which such increased value should be reserved wholly or in part for the ratepayers at whose expenditure it has been produced, therefore,

(1) There shall be a rent charge, to be called the Strand Improvement Rent Charge, which shall be fixed, ascertained, charged, and payable in manner hereinafter described. But the total of the Strand Improvement Rent Charge shall not be of any amount which, when capitalised on such basis as the Standing Arbitrator may deem reasonable, would, in his opinion, exceed one-half of the cost of the improvement.

(2) A standing Arbitrator may be from time to time appointed for the purposes of this Act, on the application of the Council, by her Majesty's Principal Secretary of State for the Home Department, and such Arbitrator shall have the powers and proceed in manner hereafter mentioned.

(3) The Council shall, as soon as conveniently may be (not later than three years after the completion of the improvement), cause to be framed a provisional award describing the lands and premises abutting on or in the neighbourhood of the improvement which in their opinion are, or will be, increased in value by, or in consequence of, the improvement, and shall in such provisional award state—

(*a*) The amount of the increased value which, in the opinion of the Council, will result to the lands and premises described in the said award respectively;

(*b*) The amount of the Strand Improvement Rent Charge to be apportioned on the lands and premises respectively in respect of such increased value;

(*c*) The names of the owners, lessees, and occupiers of the lands and premises respectively so far as they can be ascertained;

(*d*) The person or persons (whether entitled to the rack-rent or in occupation of the lands or premises) by whom such rent-charge shall be payable.

But there shall not be included in such award (or in any final award made as hereinafter provided) any lands or premises not situate within the area described in the schedule to this Act."

The Bill then goes on to prescribe the further procedure in regard to the consideration and approval of the award by the Council, its exhibition and inspection, the lodging of and dealing with objections, the issue of a final award, area, and basis of apportionment of the proposed rent-charge. The area which it is proposed to subject to this rent-charge is thus defined in the schedule to the Bill:—

"An area bounded on the south by the Victoria Embankment, and on other sides by an imaginary line drawn as follows:—

Commencing at the northernmost end of Waterloo Bridge; thence passing along Wellington-street to its junction with the Strand; thence to the southern corner of Catherine-street; thence along Catherine-street to its junction with White Hart-street; thence along White Hart-street, Blackmoor-street, and Clare-street, to the easternmost end of Vere-street; thence westward along Vere-street to its junction with Sheffield-street; thence along Sheffield-street to Portsmouth-street; thence along Portsmouth-street and Portugal-street to Serle-street; thence southward to the southern end of Serle-street; thence along the north-western and southern sides of the Royal Courts of Justice, excluding the land on which the said Courts are built, to the site of Temple Bar; thence along the Strand to the northern end of Essex-street; thence along Essex-street to the southern end thereof; thence following the boundary of the Temple property to the south-western corner thereof, but excluding any part of the Temple; and thence in a direct line to the point where the boundary of the City of London crosses the Temple Pier.

The area above described includes all lands and premises fronting or abutting on the east side of Wellington-street (but excluding Somerset House), all lands and premises fronting or abutting on the west side of Catherine-street, the premises situate in the angle formed by the junction of Brydges-street and Exeter-street, all lands and premises fronting or abutting on the north-western side of White Hart-street, Blackmoor-street, Clare-street, and Sheffield-street, and the lands and premises fronting or abutting on the south side of Vere-street for a distance of 50 yards from the junction of Clare-street with Vere-street, all premises fronting or abutting on the northern side of Portugal-street and on the western side of Serle-street southward of Portugal-street, all lands and premises fronting or abutting on the Strand between the site of Temple Bar and Essex-street, all lands and premises fronting or abutting on the eastern side of Essex-street or lying between Essex-street on the west and Devereux-court and the Temple on the east."

There was a good deal of discussion on these proposals in the Bill, both in regard to the principle involved and the administrative details. To take one of the last-named first, the area laid down by the foregoing schedule as contributory to the recoupment of the cost of the improvement was characterised as unsatisfactory. How could Serle-street, it was asked, be considered as contiguous to the Strand, when it had no outlet to that thoroughfare? To this objection, it was replied that the area scheduled had been determined by the Architect, the Valuer, and Mr. Vigers, after actual survey and consideration. With regard to the doctrine of "betterment" involved, it was said that, although it was all very well in theory, and very easy to lay down, it would be difficult to apply in practice, although it might be found to work in a new country like America. However, after a good deal of discussion, the draft of the Bill was agreed to.

*Subways.*—The Parliamentary Committee also submitted the draft of the London Subways and Overhead Wires Bill, which was adopted.

*The Building Act.*—The same Committee reported on the subject as follows:—"With reference to the instructions given by the Council on Nov. 12 for amending the Building Act in certain particulars, we have not seen our way, in the absence of a definition of 'tenement houses in the occupation of the working classes,' to draft clauses which would satisfactorily carry out in a private Bill the Council's resolution as regards open spaces at rear of buildings. We therefore recommend—

'That it be referred back to the Building Act Committee to reconsider the matter, and to bring up some more detailed instructions as to the particular houses to which it is intended the new provisions shall apply.'"

This was agreed to.

*General Powers Bill.*—The same Committee further reported as follows:—"We have also prepared and circulated to the members of the Council the London County (General Powers) Bill, which includes the following matters:—Alteration of Barking-road-bridge and approaches; the acquisition of Brockwell Park, Lambeth; representation of the Council on the Thames and Lee Conservancy Boards; repeal and consolidation of bye-laws for parks and open spaces; exemption of members of the Council from service on juries; provision of mortuaries; penalty for trespassing in main sewers; procedure and conduct of the business of the Council; powers relating to buildings,* water supply, and markets, contracts as to payment in respect of County Rate, and power to defray expenses as if incurred under 18 and 19 Vict., cap. 120. With regard to markets, the resolution of the Council on October 15 appears to have contemplated not only a special inquiry, but authority to the Council to subsequently introduce a Bill, should the Council after such inquiry think it desirable to do so. On consideration, we thought it better to omit any reference to the introduction of a Bill, and to limit the powers sought to inquiry only, as in the case of water. We recommend:—

'That the seal of the Council be affixed to a petition for leave to introduce the London Council (General Powers) Bill, and that the Bill be deposited with the petition, pursuant to the Standing Orders of Parliament, with such verbal alterations (if any) as the Parliamentary Committee may consider desirable.'"

*Mr. Burns's Charges against Messrs. Brass.*—On the motion of Mr. Torrance, it was resolved—

"That the Special Committee, to which the Council on November 26 (No. 23) referred the matter of the accusations affecting the position and standing of Messrs. Brass & Sons, do consist of the following members, viz.:—Mr. Antrobus, Mr. Beal, Mr. Brereton, Mr. Debenham, Mr. Bassett Hopkins, Mr. Lawson, M.P., and Mr. Westacott."

After discussing other business, the Council adjourned until Tuesday next at noon.

## ARCHITECTURAL SOCIETIES.

*Leeds and Yorkshire Architectural Society.*—"The Present State and Prospects of our Modern Architecture" was the title of the first lecture of the present session in connexion with the Leeds and Yorkshire Incorporated Architectural Society, delivered on Monday evening a Croft's-chambers, Infirmary-street, Leeds, by Mr. Edward J. Tarver, F.R.I.B.A. Mr. Henry Perkin, President of the Society, occupied the chair. In the course of his remarks, the lecturer observed that in the present day the use of distinct styles had become common to a great extent, but people were beginning to find out that rigid purity of style,—Gothic inside and out of a house,—sometimes produced rather a severe strain upon one's ideas of true comfort at home. Now-a-days, an architect's client wanted his house built in some particular style or other, and so for the sake of peace and quiet the term

* Clause 12 as it stands in the draft of the Bill reads as follows:—

"12. In settling any question of disputed purchase-money or compensation under this Act, the Arbitrator, Arbitrators, Umpire, or Jury determining the amount of purchase-money or compensation shall base the same upon what in their opinion would have been the fair market value of the lands or premises if the improvement had not been contemplated, due regard being had to the nature and condition of the property and the probable duration of the buildings in their then state, and to the state of repair thereof, and all circumstances affecting such value. But no sum of money shall be awarded for or in respect of any improvement, alteration, or building which in the opinion of the Arbitrator, Arbitrators, Umpire, or Jury shall have been made or created with a view to obtaining or increasing compensation under this Act, *nor shall any additional allowance be made in respect of compulsory purchase of any lands or premises.*"

* We give the text of this part of the Bill on another page.

"Queen Anne" had been murmured into his confiding ears. With regard to church architecture, the lecturer remarked that the most interesting of our old churches were those that were built in different styles. If architects admired the several styles of ancient architecture, they should be consistent and try to carry on the series by unfolding a style of their own. The attempt to improve on the work of the last man was what we now had in our civil and domestic architecture; not so much to preserve old forms as by adapting old forms to new ways and combining them. A large amount of original thought was being devoted to the fulfilment of clients' wishes, and it was admitted that this was being successfully done. As to our churches, well, they were excellent versions of the previous styles; but it would be found that the old architects did not build versions of older styles—not a bit of it! The surest process of checking the formation of a style was the imitation of old ones. Much of our modern work in England, however, was true to its day. The seeming difficulty lay in the number of old examples we knew of; almost any form could be adapted to harmonise with any building. Speaking of improvements possible in the construction of buildings, the lecturer emphasised the value of concrete, and considered that iron and concrete in combination had a great future before them. He thought, in conclusion, that architects were in a fair way to settle down to a style of their own if they only chose to stick to it. The lecture was illustrated in an interesting manner by means of photographs, sketches, &c., of typical examples of architecture; and at the close, on the motion of Mr. Corson, seconded by Mr. Thorp, Mr. Tarver was cordially thanked.

*Sheffield Society of Architects and Surveyors.*—The monthly meeting of this Society was held at the School of Art on Tuesday evening. Mr. F. Fowler, the president, occupied the chair, and there was a good attendance of members. Mr. H. Longden, who was received with hearty applause, read an interesting technical paper on "Old English Ironwork." Remarking that it was his intention to confine himself to the history of the rise and progress of work in hammered iron for ornamental, defensive, and domestic purposes, he went on to describe the characteristics of English ironwork from the twelfth century, when a great impetus was given to the art by its use for defensive armour, through the Middle Ages to the close of the fifteenth and sixteenth centuries, when the smith gave way to the locksmith and brass-worker, and the art declined. He quoted from old MS. authorities as to the prices of iron and payment of smiths at Westminster Abbey and other important buildings, pointing out that at Westminster, A.D. 1293, the foreman smith was a highly-paid and skilled craftsman. During the fourteenth century, the first known examples of fire-dogs are to be met with, and there was a much greater refinement and improvement at this period in the design of ironwork, which was often tinned and gilded. During the seventeenth and eighteenth centuries the art was revived by Sir Christopher Wren and other noted architects. At St. Paul's, Wren had a French smith, Tijou. The Hampton Court gates and other fine works of the period were instanced. At the close of last century the art declined, when iron casting came largely into fashion, to be revived again in our own day with the general revival of the decorative arts. There were now skilled smiths in England who, under proper tuition and direction, were able to equal, and actually were equalling, if not excelling, much of the old work, and producing art-work with a distinctive style and character of its own. On the motion of Mr. Flockton, supported by Mr. Innocent and Mr. C. Hadfield, a hearty vote of thanks was accorded to Mr. Longden. In returning thanks, the lecturer suggested as a work to be taken in hand by the Society, especially its younger members, the drawing of every example (and there were many) of old metal-work, wood-work, &c., remaining in Sheffield. In after years such a work, put together in book-form, would be a valuable record of local art, and would be appreciated by the public.

**Industrial Exhibition in the Caucasus.**—An industrial exhibition, the first of its kind in the Caucasus, is now being held at Tiflis.

## ARCHÆOLOGICAL SOCIETIES.

*The British Archæological Association.*—At the meeting of this Association on the 4th inst., Mr. W. de Gray Birch, F.S.A., in the chair, Dr. A. Fryer reported the discovery of a Mithræum at Ober, the altars and other antiquities from which have been removed to the Museum, Darmstadt. He submitted a specimen of the mortar sent to him to analyse, and described the results: Sand, carbonate of lime, alumina, oxide of iron, carbonate of magnesia, sulphate of lime, soluble silica, with a trace of chlorine, were met with in varying proportions. The mortar, however, was poor and friable. A long and interesting discussion followed. Mr. J. W. Grover, F.S.A., referred to the wisdom of keeping ancient foundations covered up, or only opened periodically; and Mr. Loftus Brock, F.S.A., spoke of the effects of frost upon the excavated remains at Silchester, and of the use of poor chalk lime mortar in many domestic Roman buildings. The thanks of the Mayor and Corporation of Lincoln for the gratuitous restoration of the maces of that city by Major Lambert, F.S.A., were acknowledged. Mr. C. H. Compton and Mr. Mills Stevenson exhibited rubbings of some fine brasses. Mr. H. Syer Cuming, F.S.A. (Scot.), reported the discovery of portions of an ancient crypt now being excavated on the site of the old Church of St. Chad, Shrewsbury, which building fell down about 1770. The first paper was by Mr. C. H. Compton, on South Creake, Norfolk, in which the descent of the manors and the history of the church were detailed, together with many curious items of local information and tradition. The second paper was by Mr. J. M. Wood, who, following a paper read at a past session, described two more churches in Essex which have the peculiarity of round towers. These were Lamersh, near Sudbury, and Pentlow. Both are of Norman, if not of earlier date, and appear to have belonged originally to older churches than the present ones.

*Royal Archæological Institute of Great Britain and Ireland.*—At the meeting of this Institute on Thursday, the 5th inst., the Rev. F. Spurrell in the chair, Mr. F. C. J. Spurrell exhibited a large collection of stone implements, lately brought by Mr. Flinders Petrie from Egypt, and read a paper describing them. Perhaps the most interesting in the collection was a sickle composed of a wooden handle and stone cutting edge. Mr. Spurrell considered that this implement derived its origin from the lower jaw of an animal. An interesting paper on the ancient font in Toftrees Church, Norfolk, was communicated to the Institute by Mr. J. E. Bale. The village of Toftrees, as its name indicates, dates from Saxon times. There are traces of Saxon,—or, more strictly speaking, Anglican,—work in the nave. The chief architectural features of the church, however, comprise work from transitional Early English to the Perpendicular styles. The church consists of a chancel, nave, and western tower minus the belfry story. The font is a fine specimen of Norman work, richly sculptured. The bowl is square in shape, and is supported by five short pillars with caps and bases, one at each angle and the fifth in the centre. On each face of the bowl is a panel containing an elaborate design in low relief. Mr. Bale contended that much of the ornamentation showed traces of Anglo-Celtic workmanship, and pointed out how it blended harmoniously with the recognised Norman details.

## ELECTRIC LIGHTING NEWS.

*Dundee.*—Last week, Mr. Hopkinson, of London, met the Electric Light Committee in Dundee, and gave a verbal statement as to the cost of lighting the centre of the city, the compulsory area suggested being from Panmure-street on the east to Tay-street on the west, including High-street, Reform-street, Commercial-street, Bank-street, Whitehall-street, Lindsay-street, and Meadow-side, up to Bell-street. The first cost of an installation of 1,000 incandescent lamps in that area was roughly estimated at 5,500*l.*; and if it went up as high as 5,000 or 10,000 lamps, Mr. Hopkinson believed the light could be produced almost as cheap as gas. He promised to furnish a detailed report, with the prices at which an installation could be given for installations varying from 1,000 to 10,000 lamps, including arc lamps for lighting the principal streets.

*Torquay.*—At the meeting of the Torquay Local Board, on the 6th inst., Mr. Newton, deputy engineer to the Municipal Electric Lighting Company (who with the Devon and Cornwall Electric Lighting Company are applying to the Board of Trade for Provisional Orders for supplying electricity in the district), attended as a deputation from his company, to support a communication from Mr. Gordon, chief electrical engineer, which dealt with the system, supply, and price. As to system, Mr. Gordon stated that the business of an electric light company in any town was to supply electricity, which under the Act of Parliament the customers might use in any way they might think fit. The company was not allowed to specify any particular lamp, but might advise in a friendly manner as to the lamp to be used. It was advantageous to use incandescent lamps, which might be of any candle-power required, preferably of about the same power as the gas-jets throughout all private houses, and, in fact, for all indoor lighting, and to use arc lamps for all street and public lighting. Some members of the Board had probably seen a very large example of the two systems working side by side in the electric lighting of the Great Western Railway at Paddington station, carried out by him (Mr. Gordon) three years ago, and which had been working without a hitch ever since. For so extensive a town as Torquay it would, probably, be advisable to adopt what was known as the "alternating-current system," but they would use only such moderate pressures as had stood the test of long experience, and which had been proved to be quite safe. The cables which he was laying down in London were covered with ordinary commercial insulation, and could be handled with perfect impunity when carrying any such current as he proposed to put into them. He should adopt an arrangement of machinery which would allow of regular and continuous extension as the business increased,—that was to say, he should build a somewhat large engine-house, and should put only a few machines into it at first, leaving room for the extension which they confidently anticipated would be required very shortly. With regard to the price proposed to be charged for electricity, they proposed for private consumers to take power to make a maximum charge not exceeding 1s. per unit, but they hoped shortly to be able to lower this. Their power of doing so would depend on the support afforded by the townspeople. This price was about 30 per cent. in excess of the cost of gas, but it was found that even at such a price the annual bills of the consumers seldom exceeded their gas bills, as the facilities for turning the electric light on and off were so much greater than gas. As to the public lamps, they would be prepared to make a very substantial reduction, their principle being to do the public lighting as near as might be at cost price in consideration of obtaining the privilege of supplying the private lights.—The matter was referred to a special committee.

## AN ILLEGALITY IN LONDON HOUSE DRAINAGE.

At the West London Police Court, on the 5th inst., Mr. Alfred Heaver, a builder, of St. John's-road, Clapham Junction, appeared to answer a summons charging him with constructing a drain to a house in Rosebery-road, Fulham, contrary to the direction of the Vestry.

Mr. Blanco White, on behalf of the Vestry, said (according to the report in the *Daily Chronicle*) a pipe was passed under the party-wall connecting the drain in the adjoining house. Notice was given to the defendant that the work would not be passed; but instead of any alteration being made the drain was covered over, thereby constituting a second offence. The Surveyor had an interview with the defendant, and pressed upon him to put the drain in proper order. The defendant then said if the proceedings were withdrawn he would do the work, otherwise he would not. When he found that he was incurring certain penalties the matter was put right. He (Mr. White) pressed the case for a conviction.

Mr. Norrington, the Surveyor, gave evidence bearing out Mr. White's statement, and in answer to Mr. Lankester, who appeared for defendant, said he did not know whether the alterations were made before the issue of the summons.

Mr. Curtis-Bennett, the magistrate, looked at the plans approved by the Vestry, and said they represented the drainage of two houses into one drain.

Mr. Norrington pointed out that the junction of the drains of the two houses was outside the boundary-wall. Practically there was separate drainage to each house.

Mr. Curtis-Bennett said the regulations required

separate drainage to each house. What was the use of having regulations if they were not complied with? In the event of a stoppage in the drain two houses would become blocked.

Mr. Norrington said the blockage would be under the control of the Vestry.

Mr. Curtis-Bennett: No matter. In the meantime fever would get into the house.

It was deposed that the junction was inside the garden.

Mr. Lancaster submitted that a technical offence only had been committed.

Mr. Curtis-Bennett, in reviewing the evidence, dwelt upon the fact that there had been a wrong departure in the works by the junction being made in the precincts of the premises where the Vestry had no power of access. He said it was most important for the well-being of this large metropolis that every house should have direct communication into the sewer, and so long as he presided at that Court he was determined to have the law carried out strictly. He did not think that a technical offence only had been committed, and fined the defendant 10*l.*, as the junction was not made according to the plans, but he should not allow costs for the reasons he had indicated.

## "A MINISTER OF FINE ART."

SIR,—It is no doubt a popular notion at the present day with many who can see only one side of a question that art can be elevated and artists created by Act of Parliament.

Your correspondent, "C. F. M.," suggests, as a remedy for the mischief he deplores at St. Alban's Abbey, that there should be a Minister of Fine Arts. He has apparently overlooked the possibility that Lord Grimthorpe himself might be the first Minister of Fine Arts, and that his successors might be like him.

When will it be understood that the hope of art lies not in the interference of the State nor in restriction of the freedom of the artist, but in the enlightenment of public taste and the awakening of public interest?

Dec. 11. T. G. JACKSON.

## TESTING STONE FOR MACADAMISED ROADS.

SIR,—I have been expecting that some surveyors would have given us their views on the above subject, after the interesting article in your issue of October 19, *re* the specimens of stone exhibited at the Paris Exhibition.

It is undoubtedly a rather difficult question to decide what is the best test to adopt for road metal; but, nevertheless, a very important one, when we consider the large amount of money expended annually on macadamised roads in England. I think the test by abrasion is not of much value, which can be easily demonstrated by the following example:—Quartz, for instance, would be 7 in hardness, whereas elvan would be about 6; but there cannot be two opinions which is the best material for road metalling,—the quartz being hard and brittle, the elvan inferior in degree of hardness, but far superior in tenacity; but if we apply the abrasive test, what is the result? Instead of the tougher material proving the best, it would be quite the reverse.

I append herewith some results obtained by a process of testing which originated with Mr. Clark, road surveyor, Truro. The standards erected are hardness, tenacity, and specific gravity.

The system adopted is as follows:—

A 3 lb. sample of broken stone,—broken to a 2½ in. gauge,—is pounded by a machine constructed for that purpose, having a 15 lb. hammer with a 10 in. drop, directly on to the material being operated on, which is placed on a solid iron bottom. The pounding continues until the material is reduced sufficiently small to pass a ½ in. sieve. All material that will not stand 200 blows before becoming reduced to the maximum gauge is considered worthless.

The following are specimens of stone tested by this process:—

| | Hardness. | Specific Gravity. | Tenacity, or number of blows. |
|---|---|---|---|
| Quartz | 7 | 2·560 | 264 |
| Elvan | 6·5 | 2·760 | 740 |
| Greenstone | 6·5 | 2·910 | 752 |
| Gneiss | 6·5 | 3·070 | 799 |
| Sandstone | 6 | 2·693 | 660 |
| Limestone | 4·5 | 2·680 | 356 |
| Granite (Guernsey) | 6 | 2·787 | 612 |
| Basalt (Clee Hill) | 6·5 | 2·656 | 724 |

SURVEYOR.

**"Safe Deposits."**—We are informed that Messrs. Chubb have in hand at their London works what is described as "the strongest and most novel form of safe deposit," for the new Security Company's premises in St. James's-street, S.W. Messrs. Chubb are also, we hear, constructing the large safe deposit for the Birmingham branch of the same company.

# The Student's Column.

## WATER-SUPPLY.—XXIV.

### RURAL SUPPLY.

THE sources usually drawn upon for the supply of villages and country mansion-houses, are springs and small streams, or wells. Where these fail, the rain collected from roofs when properly treated is utilised, and even where water derived from the first-mentioned sources is laid on, it is often customary to store rain from roofs of large mansions, in addition, for use in the garden or for washing purposes, especially when the other water alluded to is rather hard. Another method, not very frequently resorted to, is the collection of rain by the ordinary drainage system on a small scale, and conducting the water to tanks underground.

In all cases of rural supply, it is essentially necessary to attend to the quality of the water proposed to be used, and we would suggest that consumers themselves should look more carefully to this than they now do. The average country gentleman is not over-particular in this respect. A local well-sinker and water-fitter produces and lays on an abundant supply to his house; the water is clear and tastes sweet, and everybody seems satisfied. Samples of the water are not submitted to a competent man for examination, and, in short, no professional assistance has been rendered in respect of the whole work, a circumstance of much gratification to the householder alluded to, as he has saved himself all the attendant fees. After a few years, the appearance and taste of the water being apparently quite the same as at first, somebody in the house contracts zymotic disease. The doctor, knowing how frequently this is brought on through drinking bad water, naturally (*inter alia*) suspects the well, and advises that the water should be examined by an expert, who pronounces it to be contaminated with sewage. On investigation, it is found that the well-sinker, not having been under proper supervision, had constructed a form of well quite unsuited to the surrounding conditions of the site, or had sunk it to a wrong horizon. Assuming the first is the cause at fault, it may be found that he has made a brick well, after his own fashion, in highly porous strata slightly water-bearing throughout, but especially so at the bottom. The cesspool belonging to the house, the drainage from piggeries, stables, &c., are made in the same porous formation, usually gravel or sand, and this water-bearing horizon is, therefore, contaminated along certain levels, according to the precise lithological character of the strata. Upon the first construction of the well, the cement (or whatever has been put in) being new, may succeed in keeping out this bad water, but eventually it finds its way through some weak places in the brickwork, and the well forms a convenient receptacle for the contaminated water to drain into.

We may quote another case as an example of the prevalent opinion in non-professional circles, even in these days of sanitary reform, as to the influence of cesspools over well water. The student will find that this is one of the most important subjects with which he will have to grapple, as it crops up in many schemes of rural supply; and although it is only an elementary point, it cannot be too strongly commented upon. A gentleman finding the water obtained from the roof of his house not altogether to his liking, consulted a proper authority as to another method of supply, and was informed that by having a well sunk, and lined in a certain manner, he could obtain what he wanted at a defined depth. On submitting the scheme to contractors, he received estimates for the work, and found that to have it lined in the manner suggested would be more expensive than in the style recommended by a local man, who "knew more about wells than the London gentleman consulted." On inquiring as to the reason for the special kind of lining, the London expert answered that "the upper layers of the proposed well would be water-bearing and contaminated from the cesspool belonging to the house, and the lining would be required to keep this deleterious water from gaining access to the well." Now the cesspool was about twenty yards from the site of the proposed well, and his client did not see how the latter could possibly be contaminated from this source, as the distance between was so great, so he followed the advice of the local contractor and had the well sunk accordingly. The result was that the water has since been condemned.

How many farmyards do we find with wells sunk in close proximity to permanent manure-heaps? The consumer in such cases fondly hopes that by bringing the brickwork of his well above the surface drainage level, he excludes all obnoxious matter; but nevertheless it soaks into the shallow well underground. And we may here point out that water may be contaminated so slightly that, ordinarily, it has not much deleterious effect upon healthy persons. Water from a well may be used for many years without producing defined disease; but, sooner or later, one of the consumers may be struck down. True, we have properly authorised persons, whose duty it is to find out and close wells giving forth water of inferior quality; but for very many obvious reasons it is not possible to detect all such bad sources. Wells in country villages are frequently only condemned after the cause of an epidemic has been inquired into.

Where water is supplied to large communities, there is almost sure to be some one who will take sufficient interest in the matter to have the quality of the water examined, but this is not always the case with villages and mansion-houses. In these latter, the occupier himself ought always to cause this to be looked after, and have an independent report made on it for his own information. Yet,—and this is an extraordinary fact,—the occupier, or proprietor, is in many instances the last person to have this done; indeed, the reluctance often arises from a suspicion that his well may be closed if the quality of the water in it is too carefully inquired into. When it is condemned, instead of being heartily glad that a fruitful source of disease has been detected in his midst, he regards it as a hardship that he is compelled to seek another supply. The condemned well, he argues, has served his family for years and, "therefore," he does not see why it should not do so for years to come.

From the foregoing, it might be imagined that well water is not suitable for rural supplies, but this is not so. On the contrary, we think that it is often the best source that can possibly be drawn upon, only that much care should be exercised in devising methods of obtaining it. Due consideration must be given to the disposition of the water-bearing horizon from which the supply is to be had, and the character of the surface deposits. For example, suppose we have a clay, covered by about 20 ft. of aquiferous gravel and sand, the clay holds up the water, but the superficial porous beds are impregnated with sewage matter, and it is clear that good water cannot be obtained from them. Underneath the thick bed of clay, sand may be found, giving out water of the first quality. Now, in order to sink a well to this last-mentioned horizon, that portion of the boring which passes through the superficial gravels alluded to, must be lined with iron cylinders to keep out the bad water. Wells are frequently lined in this manner almost throughout their entire depth. Very often the source of contamination only exists in the uppermost few feet of the well. Instead, therefore, of looking for altogether different sources of supply where wells are condemned, it should first be ascertained whether, by lining the well properly, the same source cannot still be utilised. It may be found more economical to construct another well on an improved system in close proximity.

In cases where a village or mansion-house is supplied from a stream, the quality of the latter may be judged from our earlier articles on that subject. As to rain collected on the roofs of houses, we recognise the fact that under certain circumstances no other water is available; but where this is not the case, it should never be used as a sole source of supply. It is all very well to say that it can be filtered and made pure—and we do not deny that by a refined process of filtration the consumer can always be assured that such water is wholesome—but we think that more palatable water and of even quality and quantity can be obtained from the other sources alluded to. Some believe that, beyond being dirty, the water from the roofs of country houses is otherwise good—that it cannot be organically polluted, having only fallen from the clouds just prior to its collection. This, however, is a fallacy; any one who inquires into the matter will find that the elements of disease are not unfrequently introduced into roof-water

by decaying animal and vegetable matter, and especially through the agency of birds. It has been directly proved that the excrement of diseased pigeons has resulted in serious contamination. Decaying animal matter, such as dead sparrows, &c., has also been found guilty in polluting roof-water. No kinds of filtration can altogether remove these noxious organic matters from water. Still, in cases where this class of water must of necessity be used, it can be very much improved, and the danger reduced to a minimum, by having special arrangements for separating the first parts of a shower (always the dirtiest) and for catching and collecting the rainfall and filtering it by an iron process in the best possible manner. The collecting tank should be kept covered up.

Mr. J. Lucas refers* to a novel system of rural supply, which consists in collecting rain-water by means of an artificial catchment-area formed of sheet zinc, which is at present in use at a little hamlet about two miles east of Goring, in Oxfordshire. The catchment-basin is enclosed by a railing, and the water runs into a tank, out of which the cottagers draw as from an ordinary well.

One of the most important items in connexion with rural supply is the provision of water, under pressure, for distribution purposes, but especially as a means of protection against fire; in this latter respect, we think that where the supply entirely consists of collected roof-water it is often totally inadequate to cope with a large conflagration, and this, perhaps, constitutes the chief objection to its use. No matter from what source the water is derived, it should be raised to a reservoir of sufficient height and storage capacity to produce a good head and ample supply in case of fire; and hydrants should be fixed in all suitable positions. Various machines for raising water will be considered in our next article.

## RECENT PATENTS.

### ABSTRACTS OF SPECIFICATIONS.

15,920, Water Cisterns. J. H. Lightbody.

The cisterns, which are the subject of this patent, are made of a substance resembling papier-mâché, light and strong, glazed, enamelled, or painted, and, if necessary, strengthened by iron stays. All kinds of rain-water goods, pipes, heads, gutters, &c., can be made in the same material.

17,839, Ventilating Sash-fastener. J. Cole.

The fastener, which is the subject of this invention, is made with a small trigger or stop to prevent its being opened from outside, and when the window is opened it can be allowed to remain partly open for ventilation without the possibility of any one entering the room through the window. The arm of the fastener, which has a double motion, is curved and passes over a segmental-shaped catch, in the centre of which is a slot or notch to receive a small trigger or stop attached to the knob. This stop is so hinged or pivotted to the arm that it readily falls into the notch, and thus prevents the arm from being moved by a blade passing through the sash. The arm extends over and grips the catch so as to tighten and firmly hold the sash in position.

1,139, Water-closet Apparatus. T. Stevens.

According to this invention, the water is retained in the basin by means of a plug or plunger, and the plug being lifted by means of a handle placed at the side of the basin, or by other means, the space required for the plug to work in is entirely covered and filled up with water when not in use, thereby avoiding the accumulation of foul air in the apparatus at such times as it is not in use.

12,397, Casement Opener. H. S. Owens.

This invention relates to the construction and arrangement of parts, constituting a mechanism whereby casements, skylights, &c., may be opened, closed, or held securely. The upper end of the operating-rod is formed into, or attached to, a slide, which travels in a guide of special construction, and the lower end is controlled by a screw-threaded nut or suitable gearing.

15,523, Ventilators. G. Connell.

This invention is principally applicable to wall-ventilators. It consists of a chamber, having a large inlet externally, and gradually tapering away in an upward direction, so that the outlet internally is only about a fourth of the area of the external inlet.

15,669, Manufacture of Artificial Asphalte. J. Ersley.

According to this patent, sand, tar, and resin are mixed in suitable proportions, and then formed into blocks. It is claimed that this artificial product is found to be proof against all temperatures, as well as against blows. It will not yield under a heavy pressure of load, and will not crack under a powerful blow. It is not affected by hot water, and can be exposed to steam without affecting any change in its condition.

* "Trans. Surveyors' Inst.," vol. xx. (1888), p. 272.

### NEW APPLICATIONS FOR PATENTS.

*Nov.* 25.—18,862, H. Sutcliffe, Water-closets.—18,866, M. Goodwin and W. Dorward, Flooring.—18,883, G. Arnold, Fire-plates.—18,911, P. de Kristoffovitch, Artificial Granite.

*Nov.* 26.—18,951, W. Hague, Kilns.—19,015, N. Sorensen, Handles for Door and other Latches.

*Nov.* 27.—19,091, F. Rendell, Facilitating the Application of Sash-cords to Windows.—19,092, W. A. Kernian, Boilers for Utilising the Waste Heat of Kilns or Ovens for burning Cement, Lime, Bricks, &c.

*Nov.* 28.—19,113, F. Laurence, Boss for Connecting Taps with Pipes.

*Nov.* 30.—19,246, J. Wilson, Fireproof Hearths and Carriers.—19,258, W. Wheatley, Roof-covering.—19,259, W. Wheatley, Hasp Lock.—19,260, C. Carmont, Non-slipping Tread.—19,292, A. Jones, Nails.

### PROVISIONAL SPECIFICATIONS ACCEPTED.

14,687, H. Sanderson and O. Ehlers, Reversible Sliding Windows.—16,120, H. Le Mesurier and W. Dart, Fastenings for Emergency Exit-doors. &c.—16,340, W. Ayres, Sash Weights.—16,726, T. Rutherford, Knobs or Handles for Doors, &c.—16,784, W. Muirhead, Flushing Apparatus.—17,447, E. Christie, Combined Door-chain and Latch.—17,665, J. Keighley, Chimney Pot or Ventilator.—17,666, J. Empson and others, Valves for Cisterns.—17,712, T. Bradley, Bench-stops or Hooks for Joiner's Benches.—17,758, H. Bassett, Building Material, &c.—17,985, J. Stone, Tip-wagons and Carts.—18,041, A. Hughes, Protractor.—18,042, J. Martin, Pigments or Paints.—18,069, B. Stocks and W. Illingworth, Automatic Bolt for Doors, &c.—18,126, H. King, Flush and Knob-bolts for Doors, &c.—18,132, E. and E. Evans, Sash-fasteners.—18,143, H. Nettlefold and J. Sheldon, Screws.—18,174, G. Diggins, Fastener for Windows, &c.—18,368, A. Thurman, Door Springs and Checks.

### COMPLETE SPECIFICATIONS ACCEPTED.

*Open to Opposition for Two Months.*

17,817, R. Batey, Chimney-tops.—685, T. Turner, Apparatus for Turning Stone, &c.—1,268, W. Lorenz, Circular-saw Disc Cutters, &c.—1,642, W. Crichton, Raising, Lowering, and Locking Window-frames.—1,863, C. Hall, Sliding Flush-bolt.—1,694, H. Blake, Block-paving.—17,002, J. Stevens & Co., Major Spring-hinges for Doors.—17,121, L. Kennedy, Brick and Tile Machines.

## RECENT SALES OF PROPERTY:

### ESTATE EXCHANGE REPORT.

Nov. 28.—By Worsfold & Hayward (at Dover).

| | |
|---|---|
| Dover—1, New-st., f, r. £16 p.a. | £170 |
| 7, 8, and 9, Albany-place, f. | 595 |
| 34, Albany-place, u.t. 81 yrs, g.r. £1 | 170 |
| 50, Limekiln-st., u.t. 6 yrs., g.r. £3. 3s., r. £25 | 100 |

Dec 2.—By T. Woods.

| | |
|---|---|
| Feltham, near—C.g.r. of £9, with reversion in 76 yrs. | 180 |

Dec. 3.—By Driver & Co.

| | |
|---|---|
| Haymarket—Improved rent of £348. 4s. p.a., u.t. 11 yrs., with reversion to rack r. for 5 yrs. | 2,800 |
| City of London—6, Tower Dock, f., r. £50 | 1,170 |
| Brentford—109, High-st., f., r. £30 | 620 |

By F. J. Bisley.

| | |
|---|---|
| Rotherhithe—303, Lower-rd., u.t. 33 yrs., g.r. £4. 10s., r. £36 | 290 |
| 5, Portland-pl., u.t. 77 yrs., g.r. £5. 12s., r. £28. 12s. | 265 |
| Bermondsey—137 and 139, Fort-rd., u.t. 50 yrs., g.r. £10 | 630 |

Dec. 4.—By J. C. Cox.

| | |
|---|---|
| Walthamstow—43 to 59 (odd), Hervey-pk.-rd., f., r. £165 | 1,490 |

By Norman, Son, & Bowen.

| | |
|---|---|
| Forest Gate—72, Earlham-grove, f. | 615 |
| Holloway—131 and 133, George's-rd., f., r. £62. 8s. p.a. | 510 |
| 113, 115, and 117, George's-rd., f., r. £79. 6s. p.a. | 565 |
| Limehouse—26 and 27, Halley-st., and 7 and 8, Ebenezer-pl., f., r. £72. 16s. p.a. | 480 |

By D. J. Chattell.

| | |
|---|---|
| Peckham—64, Anstey-st., u.t. 87 yrs., g.r. £5, r. £28. 12s. | 205 |
| Bowes Pk.—95 to 100, Whittington-rd., f., e.r. £130 | 1,400 |

Dec. 5.—By J. G. & A. Prevost.

| | |
|---|---|
| Forest-gate, Capel-rd.—"Taniwah House," f., r. £28 p.a. | 420 |
| Bethnal-green—65, 69, and 71, Coventry-st., u.t. 20 yrs., g.r. £9 | 420 |

By Newbon & Harding.

| | |
|---|---|
| Essex-rd.—47, Oxford-rd., u.t. 56 yrs., g.r. £8 | 440 |
| Stoke Newington—3, Brodia-rd., u.t. 75 yrs., g.r. £6, r. £31. 4s. | 210 |
| Clerkenwell—9, Wilmington-sq., u.t. 25 yrs., g.r. £12, r. £60 | 325 |
| 10, Wilmington-sq., u.t. 26 yrs., g.r. £12, r. £85 | 455 |
| Highbury New Pk.—No. 119, u.t. 60 yrs., g.r. £2. 10s. | 805 |
| Islington—168, New North-rd., u.t. 38 yrs., g.r. £8. 6s., r. £40 | 310 |

By Walker & Runtz.

| | |
|---|---|
| Crouch End—F.g.r. of £40, with reversion in 78 yrs. | 940 |
| F.g.r. of £30, with reversion in 78 yrs. | 650 |
| F.g.r. of £105, with reversion in 78 yrs. | 2,300 |
| Hatton-garden—3, Charles-st., and 2, Robin Hood-yd., f., r. £100 | £1,320 |
| 1, Robin Hood-yd., f., r. £30 p.a. | 320 |
| Holborn—11, Leather-lane, f., r. £60 p.a. | 850 |
| Finsbury-pk.—60 to 68 (even) Fonthill-rd., f., r. £150 p.a. | 1,800 |
| 70, 72, 78, 80, and 82, Fonthill-rd., f., r. £190 p.a. | 1,705 |
| Upper Holloway—42 to 50 (even), Wedmore-st., u.t. 21 yrs., g.r. £26. 4s. | 500 |
| East Greenwich—6 and 8, Chester-st., and 8 and 12, Braddyl-st., u.t. 31 yrs., g.r. £10. 18s. | 610 |
| New Cross-rd.—No. 298, u.t. 10 yrs., g.r. £4. 10s., r. £30 | 90 |

By B. Brown.

| | |
|---|---|
| Cubitt Town—The Poplar Dry Dock, with Plant and Machinery, u.t. 53 yrs., r. £340 | 12,900 |

By Broad & Wiltshire.

| | |
|---|---|
| Regent's-pk.—1, 2, and 4, Barrow-hill-place; and 2, Wells-road, u.t. 12 yrs., g.r. £37 | 830 |

Dec. 6.—By Baker & Sons.

| | |
|---|---|
| Edgware-rd.—44 and 50, Church-st., u.t. 32 yrs., g.r. £21, r. £120 | 780 |

By C. D. Field & Sons.

| | |
|---|---|
| Hackney—5 and 7, Sylvester-rd., and 1 to 4, Grove-buildings, f., r. £257. 12s. p.a. | 3,400 |

[*Contractions used in this list.*—F.g.r. for freehold ground-rent; l.g.r. for leasehold ground-rent; i.g.r. for improved ground-rent; g.r. for ground-rent; r. for rent; f. for freehold; c. for copyhold; l. for leasehold; e.r. for estimated rental; u.t. for unexpired term; p.a. for per annum; yrs. for years; st. for street; rd. for road; sq. for square; pl. for place; ter. for terrace; yd. for yard, &c.]

## MEETINGS.

Saturday, December 14.

*University College, London (Archæology).*—Demonstration at the British Museum. 11.30 a.m.

*Royal Institute of Architects of Ireland.*—Annual General Meeting and Annual Dinner.

Monday, December 16.

*Royal Institute of British Architects.*—Mr. David MacGibbon on "The Architecture of Provence." 8 p.m.

Tuesday, December 17.

*Institution of Civil Engineers.*—Discussion upon Professor Osborne Reynold's paper on "The Triple-Expansion Engines and Engine Trials at the Whitworth Engineering Laboratory, Owen's College, Manchester." 8 p.m.

*Glasgow Architectural Association.*—Mr. Hippolyte J. Blanc on "Scottish Collegiate Churches of the Fifteenth and Sixteenth Centuries."

*Architectural Association.*—"Common Room" Meeting. Discussion on "The Position of Architects' Assistants."

Wednesday, December 18.

*Society of Arts.*—Sir Robert Rawlinson on "London Sewage." Professor Sir H. E. Roscoe, F.R.S., M.P., in the chair. 8 p.m.

*Civil and Mechanical Engineers' Society.*—Mr. R. Bolton on "Percussive Rock-Drilling Machinery." 7 p.m.

*Builders' Foremen and Clerks of Works' Institution.*—Annual Meeting of the Directors. 8 p.m.

*Royal Meteorological Society.*—Four papers will be read, 7 p.m.

## Miscellanea.

**East of Scotland Engineering Association.**—The second meeting of the session was held on the 3rd inst., in Edinburgh, Mr. J. B. Bennett, C.E., President, in the chair. Mr. James Thomson, Assoc.M.Inst.C.E., read a paper on "A Successful Purification Process for Sewage and Water," in which, after referring to the various methods which have been at different times adopted for these purposes, he described fully the works at Acton, in which the process of the International Purification Company is in use. The paper gave rise to an animated discussion.

**The British Home for Incurables.**—The Board of Management of the British Home for Incurables, Clapham, having purchased a freehold site at Norwood, ask for the sum of 15,000*l.* to erect the new Home (rendered necessary by the expiration of the lease of the present premises), which will, we are promised, have every modern improvement for the care of the patients, combined with strict economy as to building.

**Indiarubber Paving.**—The experiments which have been made with indiarubber paving in Hanover, Berlin, and Hamburg are reported to have proved so successful that the use of this material for street paving is to be extended. The indiarubber is not slippery, and has not shown much sign of wear, and the traffic upon it is of course noiseless.

**The New Houses of Parliament in Stockholm.**—The jury appointed to decide upon the designs for the new Houses of Parliament in Stockholm, has awarded the first premium, 335*l.*, to Herr Valfrid Karlson, a young rising Swedish architect, for the best design. Four other premiums were also awarded, and four more designs purchased.

**The English Iron Trade.**—The English iron market is not over active, but there is greater steadiness, and there are more inquiries, while in some departments the demand is as well sustained as ever. The pig-iron trade has become more settled, and it is evident that prices will not go much lower for legitimate business, whatever vagaries may be induced by the speculation in warrants. It is fortunate that the speculative fever which at one time threatened to upset the market has been checked. Prices of Scotch warrants have improved on the week, while there has been a slight drop in some brands of Scotch makers' iron. Although Cleveland pig-iron has lost 2s. 6d. a ton on the week, making it 61s. 6d., there is no fear of its going below 60s., owing to the scarcity and dearness of fuel. Lancashire and midland brands of pig-iron are tolerably firm in price, but here and there makers do not hold quite so stiffly to quotations as a few weeks ago. The price of Bessemer iron is very firm, and in the north-west has again improved to the extent of 1s. 6d. a ton. Finished iron is in fairly active demand, and rates are firmer. Staffordshire makers of bars have advanced their quotations 5s. a ton, and sheet-makers also quote 5s. more. Steel is still going up, rails, blooms, and plates being again increased in price. Shipbuilders are still adding to the bulk of their orders in hand, and the prospects of the trade are most encouraging. Engineers are also taking fresh work.—*Iron.*

**Sanitary Assurance Association.**—On Monday last the ordinary meeting of the Council of the Sanitary Assurance Association was held at the offices, 5, Argyll-place, W., the President, Sir Joseph Fayrer, F.R.S., in the chair. Arrangements were completed for a series of lectures during January and February next in the theatre of the College of State Medicine, Great Russell-street. The series will include the following:—Mr. H. Rutherfurd, barrister-at-law, on "House Sanitation from a Householder's Point of View," Sir Joseph Fayrer in the chair. Professor T. Roger Smith, F.R.I.B.A., on "Household Warming and Ventilation," Sir Douglas Galton, F.R.S., in the chair. Mr. Mark H. Judge, A.R.I.B.A., on "The Sanitary Registration of Buildings Bill," Lord Henry Bruce, M.P., in the chair. The object of the Association being to promote good sanitary arrangments in the houses of all classes of the community, both men and women are invited to these lectures. Discussion is invited. Full particulars may be had on application to the secretary, Mr. Joseph Hadley.

**Douglas, Isle of Man.**—In the recent competition open to architects for designs to provide increased accommodation for the passenger traffic at Douglas, Isle of Man, the plans of Mr. Henry A. Cheers, of Twickenham, have proved successful, and he has been commissioned to obtain tenders from builders forthwith. The accommodation to be provided embraces luggage and ticket-offices for the steam-packet companies, ladies' and gentlemen's waiting-rooms, with extensive cloak-rooms, lavatories, &c., police and cabmen's-shelters, a large public arcade 60 ft. by 50 ft., large refreshment-rooms, and twelve lock-up shops. The whole will be on the ground-floor level, and covered with a flat roof, which will form a spacious promenade overlooking the landing-pier.

**The New Theatre at Christiania.**—The programme of the competition for the design for a new national theatre at Christiania has been prepared by the Government architect, Herr Bull. It is to seat 1,500 persons, and will cost 35,000*l.* There are two premiums offered of 140*l.* and 85*l.*

## PRICES CURRENT OF MATERIALS.

| TIMBER. | £. | s. | d. | £. | s. | d. |
|---|---|---|---|---|---|---|
| Greenheart, B.G. ....ton | 7 | 0 | 0 | 7 | 15 | 0 |
| Teak, E.I. ....load | 12 | 0 | 0 | 14 | 0 | 0 |
| Sequoia, U.S. ....foot cube | 0 | 2 | 8 | 0 | 3 | 0 |
| Ash, Canada ....load | 3 | 0 | 0 | 4 | 5 | 0 |
| Birch ,, ....| 3 | 0 | 0 | 4 | 15 | 0 |
| Elm ,, ....| 3 | 10 | 0 | 4 | 15 | 0 |
| Fir, Dantzic, &c. ....| 2 | 0 | 0 | 3 | 10 | 0 |
| Oak ,, ....| 2 | 10 | 0 | 4 | 10 | 0 |
| Canada ....| 5 | 10 | 0 | 7 | 0 | 0 |
| Pine, Canada red ....| 2 | 10 | 0 | 3 | 10 | 0 |
| ,, yellow ....| 3 | 0 | 0 | 5 | 5 | 0 |
| Lath, Dantzic ....fathom | 4 | 10 | 0 | 5 | 10 | 0 |
| St. Petersburg ....| 5 | 0 | 0 | 6 | 10 | 0 |
| Wainscot, Riga, &c. ....log | 0 | 0 | 0 | 0 | 0 | 0 |
| Deals, Finland, 2nd and 1st ...std. | 8 | 10 | 0 | 11 | 0 | 0 |
| ,, ,, 4th and 3rd ....| 7 | 0 | 0 | 8 | 0 | 0 |
| ,, Riga ....| 7 | 0 | 0 | 9 | 0 | 0 |
| St. Petersburg, 1st yellow ....| 11 | 0 | 0 | 14 | 0 | 0 |
| ,, 2nd ,, ....| 9 | 0 | 0 | 10 | 10 | 0 |
| ,, white ....| 6 | 10 | 0 | 10 | 0 | 0 |
| Swedish ....| 7 | 10 | 0 | 16 | 0 | 0 |

| TIMBER (*continued*). | £. | s. | d. | £. | s. | d. |
|---|---|---|---|---|---|---|
| Deals—White Sea ....| 9 | 0 | 0 | 17 | 0 | 0 |
| Canada, Pine, 1st ....| 16 | 0 | 0 | 26 | 0 | 0 |
| ,, ,, 2nd ....| 11 | 0 | 0 | 17 | 10 | 0 |
| ,, ,, 3rd, &c. ....| 8 | 0 | 0 | 10 | 10 | 0 |
| ,, Spruce, 1st ....| 9 | 0 | 0 | 11 | 0 | 0 |
| ,, ,, 3rd and 2nd ....| 7 | 0 | 0 | 9 | 0 | 0 |
| New Brunswick, &c. ....| 8 | 0 | 0 | 8 | 10 | 0 |
| Battens, all kinds ....| 6 | 0 | 0 | 17 | 0 | 0 |
| Flooring Boards, sq., 1 in., prepared, First ....| 0 | 11 | 0 | 0 | 14 | 0 |
| Second ....| 0 | 8 | 0 | 0 | 10 | 6 |
| Other qualities ....| 0 | 6 | 0 | 0 | 7 | 9 |
| Cedar, Cuba ....foot | 0 | 0 | 4 | 0 | 0 | 5 |
| Honduras, &c. ....| 0 | 0 | 4 | 0 | 0 | 4½ |
| Mahogany, Cuba ....| 0 | 0 | 5 | 0 | 0 | 6½ |
| St. Domingo, cargo average ....| 0 | 0 | 5 | 0 | 0 | 6½ |
| Mexican, cargo average ....| 0 | 0 | 4½ | 0 | 0 | 5½ |
| Tobasco ,, ....| 0 | 0 | 5½ | 0 | 0 | 6½ |
| Honduras ,, ....| 0 | 0 | 5½ | 0 | 0 | 6½ |
| Box, Turkey ....ton | 4 | 0 | 0 | 13 | 0 | 0 |
| Rose, Rio ....| 15 | 0 | 0 | 20 | 0 | 0 |
| Bahia ....| 14 | 0 | 0 | 18 | 0 | 0 |
| Satin, St. Domingo ....foot | 0 | 0 | 9 | 0 | 1 | 3 |
| Porto Rico ....| 0 | 0 | 10 | 0 | 1 | 6 |
| Walnut, Italian ....| 0 | 0 | 4½ | 0 | 0 | 6½ |

| METALS. | | | | | | |
|---|---|---|---|---|---|---|
| IRON—Bar, Welsh, in London...ton | 7 | 15 | 0 | 8 | 5 | 0 |
| ,, ,, at works in Wales ... | 7 | 5 | 0 | 7 | 15 | 0 |
| ,, Staffordshire, in London ... | 8 | 10 | 0 | 9 | 10 | 0 |

| METALS (*continued*). | £. | s. | d. | £. | s. | d. |
|---|---|---|---|---|---|---|
| COPPER— | | | | | | |
| British, cake and ingot ....| 55 | 0 | 0 | 56 | 0 | 0 |
| Best selected ....| 57 | 0 | 0 | 58 | 0 | 0 |
| Sheets, strong ....| 66 | 0 | 0 | 67 | 0 | 0 |
| Chili, bars ....| 49 | 0 | 0 | 0 | 0 | 0 |
| YELLOW METAL ....lb. | 0 | 0 | 5½ | 0 | 0 | 6 |
| LEAD—Pig, Spanish ....ton | 13 | 17 | 6 | 14 | 0 | 0 |
| English, com. brands ....| 13 | 17 | 6 | 14 | 0 | 0 |
| Sheet, English ....| 16 | 5 | 0 | 16 | 10 | 0 |
| TIN—Banca ....| 100 | 0 | 0 | 0 | 0 | 0 |
| Billiton ....| 99 | 0 | 0 | 0 | 0 | 0 |
| Straits ....| 97 | 0 | 0 | 0 | 0 | 0 |
| Australian ....| 97 | 0 | 0 | 0 | 0 | 0 |
| English Ingots ....| 102 | 0 | 0 | 0 | 0 | 0 |
| Bars ....| 103 | 0 | 0 | 0 | 0 | 0 |
| Refined ....| 104 | 0 | 0 | 0 | 0 | 0 |

| OILS. | | | | | | |
|---|---|---|---|---|---|---|
| Linseed ....ton | 20 | 10 | 0 | 20 | 15 | 0 |
| Cocoanut, Cochin ....| 26 | 10 | 0 | 0 | 0 | 0 |
| Ceylon ....| 23 | 10 | 0 | 23 | 15 | 0 |
| Palm, Lagos ....| 25 | 10 | 0 | 0 | 0 | 0 |
| Rapeseed, English pale ....| 33 | 10 | 0 | 0 | 0 | 0 |
| ,, brown ....| 32 | 10 | 0 | 0 | 0 | 0 |
| Cottonseed, refined ....| 22 | 5 | 0 | 0 | 0 | 0 |
| Tallow and Oleine ....| 21 | 0 | 0 | 40 | 0 | 0 |
| Lubricating, U.S. ....| 5 | 19 | 0 | 6 | 10 | 0 |
| ,, refined ....| 7 | 0 | 0 | 13 | 0 | 0 |
| TAR—Stockholm ....barrel | 1 | 6 | 0 | 0 | 0 | 0 |
| Archangel ....| 0 | 15 | 6 | 0 | 15 | 9 |

## COMPETITIONS, CONTRACTS, & PUBLIC APPOINTMENTS.

*Epitome of Advertisements in this Number.*

### COMPETITIONS.

| Nature of Work. | By whom Required. | Premium. | Designs to be delivered. | Page |
|---|---|---|---|---|
| Victoria Institute Buildings ....| Worcester Corporation | 300*l.* divided ....| Feb. 28th | ii. |
| New Baths, Winter Gardens, &c. ....| Harrogate Corporation | 150*l.* 100*l.* 75*l.* & 50*l.* | Mar. 1st | xii. |

### CONTRACTS.

| Nature of Work or Materials. | By whom Required. | Architect, Surveyor, or Engineer. | Tenders to be delivered. | Page. |
|---|---|---|---|---|
| Station Buildings, Bristol ....| G. W. R. Co. ....| *Official* ....| Dec. 17th | ii. |
| Cast-iron Lamp Posts and Gully Gratings... | Bethnal Green Vestry | F. W. Barratt ....| Dec. 19th | xii. |
| Plumbing Works ....| St. George-in-the-East Guardians ....| Wilson, Son, & Aldwinckle | Dec. 20th | xii. |
| Extension of Road Sewer ....| Toxteth Park Loc. Bd. | John Price ....| Dec. 23rd | xii. |
| Re-building Premises, Croydon ....| Messrs. Gould & Co. ... | A. Broad ....| do. | ii. |
| Cast-Iron Pipes ....| Alton (Hants) Loc. Bd. | Jas. Mansergh ....| do. | ii. |
| Lap-welded Steel Water-pipes ....| City of Pretoria Wwks. | Pritchard & Co. ....| Not stated. | ii. |

### PUBLIC APPOINTMENTS.

| Nature of Appointment. | By whom Advertised. | Salary. | Applications to be in. | Page. |
|---|---|---|---|---|
| County Surveyor ....| Glamorgan C. C. ....| 750*l.* ....| Dec. 20th | xvii. |
| Clerk of Works (Schools and Enlargements) | School Bd. for London | 3 guineas weekly ... | Dec. 21st | xvii. |
| Do. (School and Furniture Repairs) | do. | 150*l.* ....| do. | xvii. |

## TENDERS.

[Communications for insertion under this heading must reach us *not later than* 12 *noon on Thursdays.*]

BRISTOL.—For converting Tithe Barn, at Shirehampton, Bristol, into a Working Men's Club, from the plans of Mr. C. F. Millar, architect, Shirehampton:—

| | |
|---|---|
| E. T. Hatherly, Bristol ....| £300 0 0 |
| Geo. Humphreys, Bristol ....| 280 0 0 |
| Wm. Colston, Bristol ....| 249 10 0 |
| Stride & Davis, Shirehampton ....| 232 10 0 |
| H. A. Force, Bristol ....| 230 0 0 |
| John Perkins, Bristol ....| 219 0 0 |
| Geo. Heard, Shirehampton ....| 204 10 0 |
| Hodge & Flowers, Shirehampton ....| 204 0 0 |
| W. C. Pugsley, Bristol ....| 198 10 0 |
| Ford & Sons, Cheddar ....| 195 10 0 |
| E. Walters, Bristol (accepted) ....| 195 0 0 |

DARENTH.—Tenders received in limited competition for supplying and fixing complete about 11,000 ft. super. Venetian blinds to specification, at Darenth Adult Asylum, for the Metropolitan Asylums Board:—

| | At per ft. super. |
|---|---|
| R. Lowther, Lambeth ....| 8d. |
| C. Davis, Castle-street, W. ....| 7 |
| A. W. F. S. Holt, Bradford ....| 7 |
| F. Giles, Kensington ....| 6½ |
| G. F. Janes, Finsbury ....| 6 |
| E. Poole, Bromley ....| 6 |
| W. Cooks, Peckham ....| 6 |
| E. Norcross, Tunbridge Wells ....| 6 |
| T. Meller, Ashton ....| 5½ |
| Duncan, Newton ....| 5½ |
| Atkinson, Westminster ....| 5½ |
| Hoskins, Old-street ....| 5½ |
| J. T. Kilburn, Cook-lane ....| 5½ |
| C. Collyer, Farringdon-street ....| 5½ |
| J. Williams, Chelsea ....| 5½ |
| J. C. Hunt, Southsea ....| 5½ |
| C. Hocking, Leicester-square ....| 5½ |
| H. J. Skelton & Co., 12, Lime-street ....| 5½ |
| D. Clarke, Birmingham ....| 5 |
| Sandford, Rockingham-street ....| 5 |
| Openshaw, Liverpool ....| 5 |
| Meredith, Shoreditch ....| 4½ |
| Janes & Son, Aldersgate-street ....| 4½ |
| Lewis, Peckham ....| 4½ |
| Hodgkinson, Birmingham ....| 4½ |
| H. E. Thompson, Blackheath (accepted) ....| 4½ |
| F. Smith, Finsbury ....| 4 |
| Saxby, New Cross ....| 3½ |
| Applebee, Walthamstow ....| 3½ |
| Simpson, Whitechapel ....| 3½ |

CLACTON-ON-SEA.—For the erection of villa residences, Edith-road, Clacton-on-Sea, for Mr. N. Cooper. Mr. E. C. Homer, architect, 99, Gresham-street, E.C.:—

Ellis & Turner (accepted) ....£7,035 0 0

ILFRACOMBE.—For rebuilding premises, High-street, Ilfracombe. Mr. T. P. Martin, architect, Swansea:—

A. Slee ....£1,610 0 0

KIDDERMINSTER.—For alterations, &c., to premises in the Bull Ring, Kidderminster. Mr. T. P. Martin, architect, Swansea:—

Binnian & Son ....£626 0 0

LEIGH (Lancashire).—For erecting shops at Leigh (Lancashire) for Dr. R. S. Hall. Mr. J. C. Prestwich, architect, Leigh:—

| | |
|---|---|
| Jos. Hilton, Leigh ....| £3,600 0 0 |
| William Winard, Wigan ....| 3,530 0 0 |
| John Preston, Wigan ....| 3,500 0 0 |
| Calland & Kay, Leigh ....| 3,480 0 0 |
| Jas. Hamilton, Altrincham ....| 3,454 0 0 |
| Henry Eyre, Leigh ....| 3,450 0 0 |
| Alex. Wigan, Ince ....| 3,440 0 0 |
| Adam Herrocks, Leigh ....| 3,428 0 0 |
| Jos. Johnson, Wigan ....| 3,380 0 0 |
| John Eddison, Leigh ....| 3,370 0 0 |
| Jos. Wright, Lee (accepted) ....| 3,298 0 0 |

LLANELLY.—For additions and alterations to the Stepney Hotel, Llanelly. Mr. T. P. Martin, architect, Swansea:—

Brown, Thomas, & Johns ....£1,510 0 0

LONDON.—For alterations and sundry works to the "Flask Tavern," Flask-walk, Hampstead, for Mr. W. J. Wotenhall. Mr. Albert E. Pridmore, architect, 2, Broad-street-buildings, E.C.:—

| | |
|---|---|
| Killby & Gayford ....| £488 0 0 |
| R. Annan ....| 448 0 0 |
| Lamble ....| 412 0 0 |
| W. J. Wiltshire ....| 395 0 0 |
| J. Crane ....| 389 0 0 |
| W. Baker ....| 382 0 0 |
| Potter & Sons ....| 360 0 0 |
| Miller ....| 295 0 0 |
| Taylor & Sons (accepted) ....| 287 0 0 |

LONDON. — For erecting the Clerkenwell Public Library, at the corner of Skinner and Whiskin streets, Clerkenwell, for the Commissioners. Messrs. Karslake & Mortimer, architects :—

| | With Red Albion Concrete. | With Terra-cotta. |
|---|---|---|
| Titmas | £7,073 12 0 | £7,571 12 0 |
| Dove Bros. | 7,060 0 0 | 7,480 0 0 |
| Bywaters | 6,634 0 0 | 7,334 0 0 |
| Williams & Sons | 6,856 0 0 | 7,332 0 0 |
| Gentry | — | 7,099 0 0 |
| Wall | — | 6,980 0 0 |
| Simpson | 6,457 8 0 | 6,960 0 0 |
| Kellaway | 6,053 0 0 | 6,653 0 0 |
| McCormick & Sons | 6,141 0 0 | 6,564 0 0* |

* Accepted.

LONDON. — For erecting house in Lordship-lane, Dulwich, for Mr. F. Craven :—

| | |
|---|---|
| W. Dean, Peckham | £980 0 0 |
| C. J. Smith, Streatham | 930 0 0 |
| J. H. Jenkins, Streatham | 887 0 0 |
| T. Watson, Dulwich | 850 0 0 |
| J. Willmott, Hitchin | 820 0 0 |
| Richardson, City | 798 0 0 |
| H. J. Williams, Borough | 697 0 0 |

LONDON.—For alterations to the "Builders' Arms," Deptford. Mr. B. J. Capell, architect :—

| | |
|---|---|
| Catmur | £380 0 0 |
| Gladding | 352 0 0 |
| Little & Senegal | 350 0 0 |
| L. Whitehead & Co. (accepted) | 310 0 0 |

LONDON.—For alterations and additions to premises at Clapham Junction, for Messrs. Arding & Hobbs. Messrs. Tolley & Sons, architects :—

| | |
|---|---|
| Capel | £323 0 0 |
| Jewel, Wandsworth | 495 0 0 |
| Waddington & Co., Sydenham | 490 0 0 |
| Hammond, Battersea | 484 0 0 |
| Marriage, Croydon | 449 0 0 |

LONDON.—For alterations at the "Lord High Admiral," Church-street, Marylebone. Mr. R. A. Lewcock, architect, 88, Bishopsgate-street Within :—

| | |
|---|---|
| G. Todd (accepted) | £630 0 0 |

LONDON.—For works to No. 60, Adelaide-road, for Mr. Dyson Lacey. Mr. Albert E. Pridmore, architect, 2, Broad-street-buildings, E.C. :—

| | |
|---|---|
| Afd. Brougham (accepted) | £102 0 0 |

[No competition.]

SOUTHBOROUGH (Kent). — For additions to the "Crooked Billet" public-house, Southborough, Kent, for Messrs. T. Norfolk & Sons. Mr. Thos. Dinwiddy, architect :—

| | |
|---|---|
| Leng, Deptford | £[illegible] 0 0 |
| Otway, Chislehurst | 720 0 0 |
| Hall, New-cross | 690 0 0 |
| Holloway, New-cross | 682 0 0 |
| Jerrard, Lewisham | 679 0 0 |
| Kennard, Lewisham | 595 0 0 |

SOUTHBOROUGH (Kent).—For the erection of a block of cottages at Southborough, Kent. Mr. Thos. Dinwiddy, architect :—

| | |
|---|---|
| Jerrard, Lewisham | £1,287 0 0 |
| Hall, New-cross | 1,100 0 0 |
| Holloway, New-cross | 1,098 0 0 |
| Otway, Chislehurst | 1,070 0 0 |
| Leng, Deptford | 1,050 0 0 |
| Peel, Bromley | 1,050 0 0 |
| Kennard, Lewisham | 1,040 0 0 |

SWANSEA.—For rebuilding the "Bird-in-Hand" Inn, Swansea. Mr. T. P. Martin, architect, Swansea :—

| | |
|---|---|
| Jenkins Bros. (accepted) | £1,645 0 0 |

SWANSEA.—For rebuilding two shops in College-street, Swansea. Mr. T. P. Martin, architect, Swansea :—

| | |
|---|---|
| Jno. Davies | £914 0 0 |

WOOLWICH.—For pulling down and rebuilding "Ordnance Arms" Hotel and shops in Beresford-square, Woolwich, for Mr. P. E. Brown. Mr. H. H. Church, architect :—

| | |
|---|---|
| James Chapman, Hackney* | £6,593 0 0 |

* Accepted.

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## TO CORRESPONDENTS.

H. T. (too vague a charge to publish).—H. W. & V.—W. & Son.—J. J. (we must know the amounts).—G. L. S. (received).—S. B. B. (corrected in list of "Meetings").

All statements of facts, lists of tenders, &c. must be accompanied by the name and address of the sender, not necessarily for publication.

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PHOTOLITHOGRAPHERS,

22, Martin's-lane,

Cannon-street, E.C. [ADVT.

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&c.

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STEEL SAFES, STRONG-ROOM AND PARTY-WALL DOORS.

Patent Clutch-Rebated Self-Closing or Folding Doors, for Theatres and Public Buildings,

As approved by the Metropolitan Board of Works (used in large numbers at Covent Garden Theatre).

*Offices & Warehouse:* 76, CHEAPSIDE, *London; Manufactories, Wharncliffe Works, Arlington-st., London, N.*